Appointment

From: Lassiter, Penny [Lassiter.Penny@epa.gov]
Sent: 12/9/2015 6:02:12 PM
To: Lassiter, Penny [Lassiter.Penny@epa.gov]; Diem, Art [Diem.Art@epa.gov]; Rimer, Kelly [Rimer.Kelly@epa.gov]; Palma, Ted [Palma.Ted@epa.gov]; Merrill, Raymond [Merrill.Raymond@epa.gov]
CC: Johnson, Steffan [johnson.steffan@epa.gov]; Bremer, Kristen [Bremer.Kristen@epa.gov]; Schell, Bob [Schell.Bob@epa.gov]

Subject: Chloroprene Call with Denka/Dupont
Location: RTP-D201-Max40/RTP-Bldg-D

Start: 12/9/2015 7:30:00 PM
End: 12/9/2015 8:30:00 PM
Show Time As: Busy

Message

From: Gray, David [gray.david@epa.gov]
Sent: 11/30/2015 1:49:15 PM
To: Smith, Darcie [Smith.Darcie@epa.gov]; Bremer, Kristen [Bremer.Kristen@epa.gov]; Rimer, Kelly [Rimer.Kelly@epa.gov]
CC: Noonan, Jenny [Noonan.Jenny@epa.gov]
Subject: Enforcement Sensitive - NATA
Attachments: Dupont Performance Elastomers.pdf; Dupont Pontchartrain Works.pdf

All – Here is a copy of materials which may contain enforcement sensitive information. Please handle accordingly.

I heard back from most programs, including the 3 biggies (Air, RCRA, Water). There are no pending enforcement actions/issues for this facility. We were not able to contact the states in this short timeframe, but the ECHO reports include state inspections and enforcement actions (last 5 years), it just doesn't capture and pending issues/enforcement for the States.

Historic information from ECHO (5-year Federal and State) for Dupont Performance Elastomers and Dupont Pontchartrain Works. Attached are the ECHO reports

ECHO FINDINGS (5-year History):

DuPont Pontchartrain Works:

- HPV/SNC: No
- Last EPA Inspection: CAA PCE Off-Site on 1/22/2015.
- Rest of the inspections were all conducted by the State. (last 5 years)
- EPA Enforcement: none in last 5 years
- State Enforcement: CWA Non Penalty AOs on 5/13/2011 and 11/23/2010

DuPont Performance Elastomers:

- HPV/SNC: No
- No EPA inspections in last 5 year. All State inspections
- EPA Enforcement: none in last 5 years
- State Enforcement: CAA Administrative order, no penalty on 9/26/2013

Message

From: Rimer, Kelly [Rimer.Kelly@epa.gov]
Sent: 11/19/2015 5:49:12 PM
To: Bremer, Kristen [Bremer.Kristen@epa.gov]
CC: Smith, Darcie [Smith.Darcie@epa.gov]
Subject: Chloroprene.pptx
Attachments: Chloroprene.pptx

For David Gray

Message

From: Rimer, Kelly [Rimer.Kelly@epa.gov]
Sent: 12/16/2015 7:45:01 PM
To: Gray, David [gray.david@epa.gov]; Noonan, Jenny [Noonan.Jenny@epa.gov]; Bremer, Kristen [Bremer.Kristen@epa.gov]
Subject: NATA briefing overview 12 16 15 SJB Parish President.pptx
Attachments: NATA briefing overview 12 16 15 SJB Parish President.pptx

Final Slides for today at 3:30

2011 National Air Toxics Assessment (NATA)

Pre-public Release

December 16, 2015

Background

- **NATA is a characterization of air toxics across the nation**
  - Nationwide screening-level assessment, not definitive predictor of health effects. It tells us where to look further.
  - Conducted with *census tract* resolution for 180 hazardous air pollutants (HAPs)
  - Emissions, modeled ambient concentrations and estimated *inhalation exposures* from *outdoor sources*
  - *Cancer and noncancer* risk estimates for 140 HAPs with health data based on *chronic exposures*
- **2011 NATA is the 5th National-scale assessment (1996, 1999, 2002, 2005)**
- **Tool for EPA and State/Local/Tribal Agencies to prioritize pollutants, emissions sources and locations of interest**

Background

Can use NATA:

- To identify locations for further study
- To prioritize pollutants and emission sources
- To inform monitoring programs

Should not use NATA:

- To draw conclusions about actual risk
- To control specific sources or pollutants
- As the sole support for regulation
- To compare risks among different areas of the country
- To compare to previous NATAs

DuPont / DENKA Facility

- The 2011 NATA results around this facility indicate that we need to look further.
- The results are driven by chloroprene emissions from the DuPont / DENKA Neoprene Production facility.
  - Neoprene facility acquired by Denka Performance Elastomers LLC on November 2, 2015.
- Facility is in the Polymers and Resins I source category and went through the EPA Air Toxics Program regulatory process in 2008. No cancer risks were estimated at that time because chloroprene did not have a cancer health value.
- In 2010, EPA classified chloroprene as a likely human carcinogen and developed the chloroprene cancer health value. This value was used in 2011 NATA.
- EPA is developing an action plan to gather further information about emissions and control strategies.

Web App Demonstration

Message

From: Rimer, Kelly [Rimer.Kelly@epa.gov]
Sent: 12/17/2015 3:44:26 PM
To: Bremer, Kristen [Bremer.Kristen@epa.gov]; Smith, Darcie [Smith.Darcie@epa.gov]
Subject: 2 more internal qs 12 17 15.docx
Attachments: 2 more internal qs 12 17 15.docx

Try these

Message

From: Stenger, Wren [stenger.wren@epa.gov]
Sent: 12/21/2015 2:54:05 PM
To: Hansen, Mark [Hansen.Mark@epa.gov]; Verhalen, Frances [verhalen.frances@epa.gov]; Casso, Ruben [Casso.Ruben@epa.gov]
Subject: FW: Contact Info

Additional contacts for Denka.

WREN STENGER
Director
Multimedia Planning and Permitting Division
EPA Region 6 Dallas, Texas
214.665.6583

From: Jorge Lavastida [mailto:Jorge-Lavastida@denka-pe.com]
Sent: Saturday, December 19, 2015 8:08 AM
To: Blevins, John; Stenger, Wren
Subject: FW: Contact Info

Mr Blevins and Ms. Stenger,

Attached is an email detailing the contact information for:

Ivan Cadwell - Site Manager DuPont, DPT Business - Pontchartrain Site
Toni Martin - SH&E Manager DuPont, DPT Business - Pontchartrain Site

Regards,

Jorge Lavastida - Plant Manager
Denka Performance Elastomer LLC - Pontchartrain Site

From: Ivan.D.Caldwell@dupont.com [mailto:Ivan.D.Caldwell@dupont.com]
Sent: Thursday, December 17, 2015 5:37 PM
To: Jorge Lavastida <Jorge-Lavastida@denka-pe.com>
Cc: Toni.L.Martin@dupont.com; Douglas.D.King@dupont.com
Subject: RE: Contact Info

Jorge,

Give them both mine and Toni's names and contact information.

Address:

586 Highway 44
LaPlace, LA 70068

Email:
ivan.d.caldwell@dupont.com

toni.l.martin@dupont.com

Regards,

Ivan Caldwell

From: Jorge Lavastida [mailto:Jorge-Lavastida@denka-pe.com]
Sent: Thursday, December 17, 2015 1:55 PM
To: CALDWELL, IVAN D
Subject: Contact Info

Ivan,

EPA will be sending a request for information from bot DuPont and DPE. I have sent my contact information for DPE. Will need one or two contacts for DuPont; yours and Toni's?

Thanks

Jorge

Message

From: Osbourne, Margaret [osbourne.margaret@epa.gov]
Sent: 12/18/2015 3:25:45 PM
To: Frey, Sarah [frey.sarah@usepa.onmicrosoft.com]
Subject: Fwd: Emailing: Denka FINAL 114 Request Letter CB -Denka.doc, DuPont FINAL 114 Request Letter - DuPont CB.doc

Sent from my iPhone

Begin forwarded message:

From: "Welton, Patricia" <Welton.Patricia@epa.gov>
Date: December 18, 2015 at 9:25:07 AM CST
To: "Lannen, Justin" <Lannen.Justin@epa.gov>, "Barnett, Cheryl" <Barnett.Cheryl@epa.gov>, "Leathers, James" <Leathers.James@epa.gov>, "Osbourne, Margaret" <osbourne.margaret@epa.gov>
Cc: "Larson, Darrin" <Larson.Darrin@epa.gov>
Subject: RE: Emailing: Denka FINAL 114 Request Letter CB -Denka.doc, DuPont FINAL 114 Request Letter - DuPont CB.doc

There is no button for me to initial in erouting - maybe because it is routed to Justin? But Cheryl reviewed as acting for me yesterday. Steve and I sent markups with Darrin and I looked to make sure name changes made in the electronic version this morning.
I do think the header on page 1 of the enclosure should be suppressed - thanks!

-----Original Message-----
From: Lannen, Justin
Sent: Thursday, December 17, 2015 5:53 PM
To: Barnett, Cheryl; Welton, Patricia; Leathers, James; Osbourne, Margaret
Subject: RE: Emailing: Denka FINAL 114 Request Letter CB -Denka.doc, DuPont FINAL 114 Request Letter - DuPont CB.doc

The two 114s including both my and Cheryl's minor changes are now uploaded to eRouting.

I did have one question on the first sentence of Question 7. I believe the 'or' needs to be removed and it's supposed to read: "Provide all measurements, engineering assessments, and calculations performed to determine the most recent Total Resource Effectiveness index value (TRE index value) for any applicable MACT standard." James - can you check on this?

I signed the slip but didn't route it on yet, as Tricia is behind me in the chain. Tricia - if you want to review, it's ready for you.

Thanks

-----Original Message-----
From: Barnett, Cheryl
Sent: Thursday, December 17, 2015 3:30 PM
To: Lannen, Justin
Cc: Welton, Patricia; Leathers, James; Osbourne, Margaret
Subject: Emailing: Denka FINAL 114 Request Letter CB -Denka.doc, DuPont FINAL 114

Request Letter - DuPont CB.doc

I made a couple of small changes and accepted changes so doc are clean. I am not on the route slip so can't edit the route slip or concur. Please delete the documents in the route slip and upload the docs attached to this email.

Your message is ready to be sent with the following file or link attachments:

Denka FINAL 114 Request Letter CB -Denka.doc DuPont FINAL 114 Request Letter - DuPont CB.doc

Note: To protect against computer viruses, e-mail programs may prevent sending or receiving certain types of file attachments. Check your e-mail security settings to determine how attachments are handled.

Message

From: Noonan, Jenny [Noonan.Jenny@epa.gov]
Sent: 12/11/2015 9:51:29 PM
To: Gray, David [gray.david@epa.gov]
CC: Keating, Martha [keating.martha@epa.gov]
Subject: Response to Title V petition
Attachments: Dupont Dow Elastomers Order_11-20-03.pdf

And our response

From: Kornylak, Vera S.
Sent: Thursday, December 03, 2015 10:55 AM
To: Noonan, Jenny <Noonan.Jenny@epa.gov>
Subject:

Vera Kornylak || Operating Permits Group Leader || OAQPS
919-541-4067 || kornylak.vera@epa.gov

BEFORE THE ADMINISTRATOR
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

IN THE MATTER OF:	)	
	)	
OPERATING PERMIT CHLOROPRENE UNIT DUPONT DOW ELASTOMERS, L.L.C. LA PLACE, ST. JOHN THE BAPTIST PARISH, LOUISIANA	)	PETITION NO. 6-03-02
	)	
Part 70 Operating Permit 3000-VO	)	

ORDER DENYING PETITION FOR OBJECTION TO PERMIT

I. INTRODUCTION

On May 7, 2002, the Louisiana Department of Environmental Quality ("LDEQ") issued DuPont Dow Elastomers, L.L.C., ("DuPont Dow") a state operating permit for its Chloroprene Manufacturing Unit at its facility in La Place, St. John the Baptist Parish, Louisiana, pursuant to title V of the Clean Air Act, 42 U.S.C. §§ 7661-7661f, and its implementing regulations. *See* Permit 3000-VO ("title V Permit" or "permit"). The permit also constitutes a state preconstruction permit which authorized the replacement of a reactor system pursuant to the State's minor new source review program. The Louisiana Environmental Action Network ("Petitioner" or "LEAN") has requested that EPA object to the issuance of the title V permit pursuant to Section 505(b) of the Act and 40 C.F.R. § 70.8(d). Petition to Object (Nov. 13, 2001). Petitioner alleges that the permit is deficient on the ground that the emission limitations applicable to halogenated vent streams under 40 C.F.R. part 63, subpart G are not correctly determined in the permit.

II. STATUTORY AND REGULATORY FRAMEWORK

Section 502(d)(1) of the Act calls upon each state to develop and submit to EPA an operating permit program intended to meet the requirements of CAA title V. The State of Louisiana has a fully approved operating permit program which can be found at 40 C.F.R. part 70 Appendix A. Under these rules, major stationary sources of air pollution and other sources covered by title V are required to obtain an operating permit that includes emission limitations and such other conditions as are necessary to assure compliance with applicable requirements of the Act, including the applicable implementation plan. *See* CAA §§ 502(a) and 504(a).

The title V operating permit program does not generally impose new substantive air quality control requirements (referred to as "applicable requirements") on sources. The program does require permits to contain monitoring, recordkeeping, reporting, and other conditions necessary to assure compliance by sources with existing applicable requirements. *See* 57 Fed. Reg. 32250, 32251 (July 21, 1992). One purpose of the title V program is to "enable the source, States, EPA, and the public to better understand the requirements to which the source is subject, and whether the source is meeting those requirements." *Id.* Thus, the title V operating permit program is a vehicle for ensuring that existing air quality control requirements are appropriately applied to a facility's emission units in a single document, therefore enhancing compliance with the requirements of the Act.

Pursuant to Clean Air Act § 505(b)(2) and 40 C.F.R. § 70.8(d), if the EPA does not object to a facility's draft title V operating permit on its own initiative, members of the public may petition the Administrator, within 60 days of the expiration of EPA's 45-day review period, to object to the proposed permit. These sections also provide that a petition must be based only on objections to the permit that were raised with reasonable specificity during the public comment period (unless the petitioner demonstrates that it was impracticable to raise such objections within that period or the grounds for such objections arose after that period).

Section 505(b)(2) of the Act requires the Administrator to issue a permit objection if a petitioner demonstrates that a permit is not in compliance with the requirements of the Act, including the requirements of 40 C.F.R. part 70 and the applicable implementation plan. In this case, the applicable requirements include 40 C.F.R. part 63, subpart G, one of the hazardous air pollutant ("HAP") emission standards promulgated pursuant to Section 112(d) of the Act. If, in responding to a petition, EPA objects to a permit that has already been issued, EPA or the permitting authority will modify, terminate, or revoke and reissue the permit consistent with the procedures in 40 C.F.R. § 70.7(g)(4) or (5)(i) and (ii) for reopening a permit for cause. A petition for review does not stay the effectiveness of the permit or its requirements if the permit was issued after the expiration of EPA's 45-day review period. *See* CAA § 505 (b)(2)-(b)(3); 40 C.F.R § 70.8(d).

III. BACKGROUND

On October 11, 1996, DuPont Dow submitted an application requesting a Part 70 operating permit for its Chloroprene Unit at the LaPlace, Louisiana facility. On November 14, 2000, DuPont Dow submitted a revision to the application to request authorization to replace the reactor system at the Chloroprene Unit with a new system that would have a higher conversion rate and generate less waste.[1] The total amount of chloroprene produced per year would not increase due to the process modification. Title V Permit at 2.

The Chloroprene Unit has been in operation since before 1969. At the time of the application, it was covered by a state permit, Permit No. 3000, and several modifications thereto. The Chloroprene Unit is a Synthetic Organic Chemical Manufacturing Industry ("SOCMI") facility and is a major source of regulated toxic air pollutants covered by, *inter alia*, 40 C.F.R. part 63, subpart G and L.A.C. 33:III.Chapter 51.

LDEQ published the proposed permit for public comment on August 25, 2001. LEAN submitted comments requesting, among other things, that additional information be made available to the public and that the comment period be extended. LDEQ published a second public notice announcing extension of the public comment period through December 5, 2001, and the scheduling of a public hearing on the same date.[2] LEAN submitted additional comments during the extended comment period. On May 7, 2002, LDEQ issued the final title V and preconstruction permit.

The emissions unit at issue in LEAN's petition is the CD Vent Condenser (Emission Point No. 1110-4), which has a permitted emission rate for chloroprene of 18.3 tpy. *See* Petition at 1, 4; *see also* Title V Permit, Emission Inventory Questionnaire for No. 1110-4. LDEQ determined that the chloroprene emissions constituted a halogenated vent stream subject to 40 C.F.R. part 63, subpart G and classified it as a "Group 2" process vent based on the equation and requirements in

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[1] DuPont Dow is awaiting issuance of a patent for the new reactor system before replacing the existing reactors. Title V Permit at 2.

[2] The hearing was adjourned when no public attendees were present.

40 C.F.R. § 63.115(d)(3) and the applicable coefficients listed in Table 1 to Subpart G. A Group 2 process vent is subject to the monitoring and reporting requirements set forth in 40 C.F.R. § 63.113(d) and (e), rather than the more stringent "Group 1" control requirements in § 63.113(a).

LEAN objects to the permit on the ground that LDEQ has misinterpreted 40 C.F.R. § 63.115(d)(3) and Table 1, and thus set the requirements for halogenated vent streams based on an incorrect Group 2 classification. Although LEAN styles its petition as raising five objections, all of the objections raise essentially this same issue. LEAN raised this issue in letters to EPA's Region 6 office and the Office of Enforcement and Compliance Assurance ("OECA") in 1996,[3] and received responses from both offices explaining the Agency's interpretation of 40 C.F.R. § 63.115(d)(3).[4] LEAN's five objections are: (1) LDEQ's interpretation of § 63.115 is inconsistent with the Clean Air Act's goal of protecting public health; (2) LDEQ's interpretation would result in increased discharges of halogenated organic HAPs, posing risks to human health;[5] (3) LDEQ's interpretation results in greater controls of nonhalogenated vent streams relative to halogenated vent streams; (4) a rational interpretation of § 63.115 must result in a Group 1 classification and the accompanying control requirements; and (5) LDEQ has misinterpreted §

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[3] *See* Letter from M. Orr, LEAN, to S. Herman, EPA OECA (Aug. 29, 1996); Letter from M. Orr, to J. Saginaw, EPA Region 6 (Aug. 19, 1996).

[4] *See* Letter from E. Stanley, EPA Office of Compliance, to M. Orr, LEAN (May 5, 1997) ("OECA Response Letter"); Letter from J. Luehrs, EPA Region 6, to M. Orr (Oct. 18, 1996) ("Region 6 Response Letter").

[5] Chloroprene is classified under State law as a Class II toxic air pollutant, and thus a "Suspected Human Carcinogen and Known or Suspected Human Reproductive Toxin." L.A.C. 33.III.5112 Table 51.1.

63.115. EPA has performed an independent review of Petitioner's claims. Based on a review of all of the information before me, I hereby deny the Petition for the reasons set forth in this Order.

IV. EPA AGREES WITH LDEQ'S INTERPRETATION OF 40 C.F.R. § 63.115 AND FINDS IT CONSISTENT WITH SECTION 112 OF THE CLEAN AIR ACT.

Petitioner asserts that it is arbitrary and capricious for LDEQ to interpret 40 C.F.R. § 63.115 in a manner that allows halogenated organic HAPs such as chloroprene to avoid "Group 1" control requirements, and emphasizes the risk that this HAP poses to public health. However, the express terms of § 63.115(d)(3) govern and, in this case, result in a Group 2 classification. Petitioner's objection reflects a lack of understanding of the method by which air toxic standards are set under Section 112(d) of the Act.

Until 1990, the Clean Air Act required EPA to set risk-based air pollutant standards under Section 112 that would provide an "ample margin of safety to protect public health." *See Cement Kiln Recycling Coalition v. EPA*, 255 F.3d 855, 857 (D.C. Cir. 2001). To address problems with the implementation of risk-based regulation, Congress amended the Act in 1990 to require EPA to set technology-based standards, referred to as "maximum achievable control technology," or MACT standards. *Id.* at 858-59. EPA has implemented this requirement through a two-step process: the Agency first sets emission "floors" for HAP emissions from each source category, and then determines whether stricter standards are achievable in light of the factors listed in Section 112(d)(2), such as the cost-effectiveness of additional emissions reductions. *Id.* Congress recognized that risk to human health and the environment may remain under the technology-based approach, and reserved the development of standards where residual risk exists for a second stage of regulation under Section 112(f), which is to occur "within 8 years" after Section 112(d) standards are promulgated.[6]

Subpart G, including 40 C.F.R. § 63.115, is a technology-based MACT standard promulgated under Section 112(d). Halogenated streams from process vents have certain treatment requirements according to whether they are determined to be a Group 1 or Group 2 stream under 40 C.F.R. § 63.111 and 40 C.F.R. § 63.115. The Group 1 or Group 2 classification depends, in part, on the Total Resource Effectiveness ("TRE") index value, which is determined by the formula in § 63.115.[7] The TRE index value serves as a measure of the supplemental total resource requirement per unit reduction of organic HAP emissions associated with the vent stream. *See* 40 C.F.R. § 63.111. In other words, "[t]he TRE is a decision tool that is used to determine if control of a process vent is required. The TRE is a standardized calculation that compares the annual cost of controlling a given vent stream with the emission reduction achieved." *See* OECA Response Letter at 2. A process vent is classified as Group 1 if the TRE value is less than or equal to 1.0, and is classified as Group 2 if the TRE value is greater than 1.0

Section 63.115(d)(3) sets forth the formula for calculating the TRE. It further provides that the applicable coefficients from Table 1 of Subpart G shall be used in the formula as follows:

> The owner or operator of a halogenated vent stream shall calculate the TRE index value based on the use of a *thermal incinerator with 0 percent heat recovery, and a scrubber*. The owner or operator shall use *the applicable coefficients in table 1 of this subpart for halogenated vent streams* located within existing sources. . . . .

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[6] EPA is in the process of conducting the Section 112(f) review for the Synthetic Organic Chemical Manufacturing Industry standards.

[7] The classification also depends on the vent stream flow rate and the total organic HAP concentration by volume. *See* 40 C.F.R. § 63.111. Those factors are not at issue in this petition.

Id. (emphasis added). Table 1 separates the appropriate coefficients for nonhalogenated vent streams from halogenated vent streams. The table, as it appears in the rule, is reprinted below, with the exception of the coefficients not at issue in this petition:

Type of Stream	Control Device Basis	Value of Coefficients			
		a	b	c	d
Nonhalogenated . .	Flare	1.935			
	Thermal Incinerator 0 Percent Heat Recovery	1.492			
	Thermal Incinerator 70 Percent Heat Recovery	2.519			
Halogenated	Thermal Incinerator and Scrubber	3.995			

The correct coefficient to use when determining the TRE for a halogenated stream is the coefficient listed under the heading "halogenated" for "Thermal Incinerator and Scrubber." *See* OECA Response Letter at 2; Region 6 Response Letter at 1. This result is required by § 63.115(d)(3) which directs the source to use the "applicable coefficients in table 1 . . . for halogenated vent streams" and to use the coefficient based on the use of a "thermal incinerator with 0 percent heat recovery, and a scrubber." There is only one entry for halogenated streams, and the control device basis listed for that stream, "Thermal Incinerator and Scrubber" plainly encompasses "a thermal incinerator with 0 percent heat recovery, and a scrubber."[8]

This reading is consistent with the other provisions in 40 C.F.R. § 63.115(d). Section 63.115(d)(3)(ii) addresses the calculation of TRE index values for nonhalogenated streams. This

[8] The Agency has previously explained that: "This equation for thermal incinerators with acid gas scrubbers was based on the 0 percent heat recovery scenario. This equation is based on the cost of controlling process vents using both a thermal incinerator and an acid gas scrubber used to remove acid gases created by combustion of the halogenated organic compound." OECA Response Letter at 3.

provision shows that the three coefficients listed in Table 1 for nonhalogenated streams are to be used in determining the TRE for nonhalogenated streams, contrary to LEAN's suggestion that nonhalogenated stream coefficients also apply to halogenated streams. Specifically, § 63.115(d)(3)(ii) provides: "The owner or operator of a nonhalogenated vent stream shall calculate the TRE index value based on the use of a flare, a thermal incinerator with 0 percent heat recovery, and a thermal incinerator with 70 percent heat recovery and shall select the lowest TRE index value." Under the entry for nonhalogenated streams, Table 1 contains coefficients for each of these three control device bases - a flare, a thermal incinerator with 0 percent heat recovery, and a thermal incinerator with 70 percent heat recovery.

LEAN, however, argues that the correct coefficient to use for halogenated vent streams is the one listed under "Nonhalogenated" for "thermal incinerator with 0 percent heat recovery." Petition at 6. LEAN contends that the table is ambiguous and that "the two descriptions in the middle of the table ("Thermal Incinerator 0% Heat Recovery" and "Thermal Incinerator 70% Heat Recovery") are not limited by 'Type of Stream'" and thus must be used for halogenated streams. To address the inconsistency this interpretation would create with the requirement to base the TRE index value on use of a "thermal incinerator. . . <u>and</u> a scrubber" (§ 63.115(d)(3)), LEAN contends that a source must then calculate the TRE a <u>second</u> time -- a "second post-treatment calculation of the TRE" -- using the "thermal incinerator and scrubber" coefficient listed for halogenated streams. Petition at 6.

EPA disagrees with LEAN's interpretation. The table is not ambiguous. Under "Type of Stream" - "Nonhalogenated", there are three controls listed under "Control Device Basis." Under any rational reading of the table, the TRE coefficients apply only to the entry they follow --

nonhalogenated streams. Moreover, the regulation does not provide for a second "post-treatment" calculation of a TRE, and doing a post-treatment calculation makes no sense. The TRE index value is a measure of the cost-effectiveness of the potentially applicable control device – for halogenated streams, a thermal incinerator and scrubber – and is used to determine whether the stream must be controlled.[9] OECA Response Letter at 3; Region 6 Response Letter at 1. The Agency's response to comments in the Subpart G rulemaking reiterates this point. BID, Volume I, at 2-11 ("The TRE index value is a measure of cost-effectiveness of control and the TRE calculation for halogenated streams is based on application of a combustor followed by a scrubber.") Thus, as the Agency has previously explained:

> it is not correct to suggest that the halogenated category "thermal incinerator and scrubber" is for determining the TRE of a vent stream coming *out* of an incinerator . . . The purpose of the acid gas scrubbers is to remove any acid gases created in the combustion of the process vent stream and is not intended to achieve greater control of emissions from the process vents.

OECA Response Letter at 4.

LEAN complains that the coefficient for halogenated streams is unreasonably high, making a Group 2 classification more likely and thus allowing halogenated organic HAPs to avoid the more stringent Group 1 control requirements. Petition at 7. However, it would be expected that the coefficient for halogenated streams is higher because halogenated streams would be subject to both a thermal incinerator and scrubber, in contrast to nonhalogenated streams, which would be

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[9] The Agency's response to comments for the Subpart G rule reflect the function of the TRE index value in more detail: "The economic feasibility of controlling a vent stream is determined by the TRE calculation. The EPA has attempted to identify streams with high or 'unreasonable' cost-effectiveness through the establishment of a Group 1/Group 2 classification based either on TRE or on low flow and low concentration levels." Docket No. A-90-19, Background Information Document ("BID"), Volume I at 2-22 (Mar. 9, 1994) (available at: http://www.epa.gov/ttn/caaa/t3/reports/honbid1.pdf).

subject to only a single control device (flare or incinerator). Two control devices predictably affect the cost-effectiveness rating, resulting in a higher TRE.

To summarize, 40 C.F.R. § 63.115(d)(3)(iii) clearly requires the TRE index value for halogenated vent streams to be determined based on the use of a thermal incinerator with 0 percent heat recovery and a scrubber. The correct coefficient is that listed in Table 1 under "Type of Stream - Halogenated," across from "thermal incinerator and scrubber" – that is, 3.995. This results in a TRE value greater than 1.0 for the CD Vent Condenser.[10] Therefore, it is a "Group 2 process vent" under § 63.111. As LEAN acknowledges, Group 2 process vents are subject to monitoring and reporting requirements under § 63.113(d), but not the control requirements of § 63.115(a). Additionally, the title V permit imposes conditions on the operation of the CD Vent Condenser as a recovery device to limit the chloroprene emissions and maintain a TRE index value above 1.0. Title V Permit, Specific Condition No. 2 & EIQ Sheet No. 1110-4.

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[10] LEAN concedes that use of the 3.995 coefficient yields a TRE index value greater than 1.0. *See* Petition at 7; Public Comments Response Summary for the Title V Permit, at 6 (TRE is 2.110). EPA has reviewed the TRE calculations and reached substantially the same TRE number. Using the equation in § 63.115(d), the TRE index value for the CD vent condenser is calculated as follows:

$TRE = (1/E_{hap})\ [a + b(Q_s) + c(H_t) + d(E_{toc})$
$TRE = 0.5249\ [3.9950 + 0.0039 - 0.0089 + 0.0018]$
$TRE = 2.095$

Coefficients from Table 1 to 40 C.F.R. part 63, subpart G: a = 3.995; b = 0.052; c = -0.001769; d = 0.00097

Q_s	H_t	E_{toc}	E_{hap}
0.0748 Dry scm/min	5.0276 Mega Joules/scm	1.9056 Kilograms/hr	1.9053 Kilograms/hr

LEAN's real disagreement is with the merits of the standards set for process vents under 40 C.F.R. part 63, subpart G, and the exclusion of risk-based factors from Section 112(d). These are not valid grounds for objecting to a title V permit.

V. CONCLUSIONS

For the reasons set forth above and pursuant to Section 505(b) of the Act and 40 C.F.R. § 70.8(d), I deny the petition submitted by the Louisiana Environmental Action Network.

/s/
Michael O. Leavitt
Administrator

Date: 11/20/03

Acttual Emissions Reported for 2013 to LDEQ

Sum of CD tpy		Actual
Release Point Description	EIQ Point ID N	Total
1110-2 JET VENT SCRUBBER	1110-2	0.49
1110-2A DCB STORAGE TANK VENTS (1031)	1110-2A	0.00
	1110-2A.1	0.00
	1110-2A.2	0.00
1110-3 ISOM REACTOR VENT	1110-3	0.54
	1110-3A	0.00
	1110-3B	0.00
	1110-3C	0.00
	1110-3D	0.00
	1110-3E	0.00
	1110-3F	0.00
	1110-3H	0.00
	1110-3I	0.00
1110-4 CD VENT CONDENSER	1110-4	4.71
1110-4B CATALYST SLUDGE RECEIVER	1110-4B	0.18
1117-1 DCB STORAGE TANKS VENT	1117-1	0.00
1140-20 AQUEOUS STORAGE VENT CONDENSER	1140-20	1.06
	1140-20A	0.00
	1140-20B	0.00
	1140-20C	0.00
	1140-20D	0.00
1150-25 EMERGENCY AQUEOUS TANK	1150-25	0.00
1700-1 NO. 7 & 8 EMULSION MANHOLES	1700-1	2.42
1700-13 POLYKETTLE MANHOLE	1700-13	3.27
1700-13A LPK MH/STRAINERS (3,4 & 5)	1700-13A	4.03
1700-14B SOLUITON MAKE UP	1700-14B.3	0.37
1700-2 STRIPPERS COMMON VENT	1700-2	8.66
	1700-2A	0.00
	1700-2B	0.00
	1700-2C	0.00
1700-20 CD REFINING COLUMN JETS	1700-20	5.52
1700-20A CD REFINING COLUMN JET SPARE	1700-20A	5.52
1700-21A 2MMLB CD STORAGE TANK	1700-21A	4.70
1700-25 EAST WASH BELT DRYER	1700-25	2.32
1700-26 WEST WASH BELT DRYER	1700-26	2.32
1700-27 EAST HOT DRYER	1700-27	11.88
1700-28 WEST HOT DRYER	1700-28	11.88
1700-3 POLY KETTLES COMMON VENT	1700-3	22.02
	1700-3A	0.00
	1700-3B	0.00
	1700-3C	0.00
	1700-3D	0.00
	1700-3E	0.00
1700-45 #1 EAST COOLING COMPARTMENT	1700-45	0.00
1700-46 #1 WEST COOLING COMPARTMENT	1700-46	0.00
1700-47 #2 EAST COOLING COMPARTMENT	1700-47	0.00
1700-48 #2 WEST COOLING COMPARTMENT	1700-48	0.00
1700-5 EMUL STORAGE TANKS 4,5,6,7, & 8	1700-5	2.42
	1700-5.3	0.00
	1700-5.4	0.00
	1700-5.5	0.00
	1700-5.6	0.00
	1700-5.7	0.00
	1700-5.8	0.00
1700-51 INHIBITOR MIX TANK	1700-51	0.68
1700-53 STRIPPED EMULSION TANK #1	1700-53	0.00
1700-54 STRIPPED EMULSION TANK #2	1700-54	0.00
1700-55 STRIPPED EMULSION TANK #3	1700-55	0.00
1700-56 UNSTRIPPED TANKS DEPRESS. VENT	1700-56	1.84
1700-5A NO. 6 EMUL STORAGE TANK MANHOLE	1700-5A	0.84
1700-63 1712 COMMON VENT HEADER	1700-63	1.89
	1700-63.1	0.00
	1700-63.10	0.00
	1700-63.11	0.00
	1700-63.2	0.00
	1700-63.3	0.00
	1700-63.4	0.00
	1700-63.5	0.00
	1700-63.8	0.00
	1700-63.9	0.00
1700-64 WATER SOLUTION MH FAN	1700-64	0.08
1700-66 BUILDING EXHAUST FAN	1700-66	15.83
1700-67 STRIPPED EMULSION TANK # 4	1700-67	0.00
1700-68 STRIPPED EMULSION TANK # 8	1700-68	0.00
1700-69 STRIPPED EMULSION TANK # 9	1700-69	0.00
1700-70 STRIPPED EMULSION TANK # 11	1700-70	0.00
1700-71 STRIPPED EMULSION TANK # 12	1700-71	0.00
1700-72 STRIPPED EMULSION TANK # 15	1700-72	0.00
1700-73 STRIPPED EMULSION TANK # 16	1700-73	0.00
1-93 FUGITIVE EMISSIONS NEOPRENE UNIT	1-93	2.13
1-96 WASTE LOADING VENT	1-96	0.01
2-74 WASTE STORAGE TANKS	2-74	0.87
	2-74.1	0.00
	2-74.2	0.00
	2-74.3	0.00
	2-74.4	0.00
	2-74.5	0.00
	2-74.6	0.00
3-91 FUGITIVE EMISSIONS CHLOROPRENE UNIT	3-91	0.55
3-95 DIVERSION TANK	3-95	0.00
3-96 HCL UNIT FUGITIVE EMISSIONS	3-96	0.03
4-95 NO. 1 AERATION TANK	4-95	2.17
5-95 NO. 2 AERATION TANK	5-95	0.03
7000-10A FLARE STACK	7000-10A	0.01
7000-16 HCL RECOVERY UNIT	7000-16	0.02
7000-17 HCL FEED TANKS	7000-17	1.11
	7000-17.1	0.00
	7000-17.2	0.00
CHLOROPRENE UNIT GC XVII	(blank)	1.65
HCL UNI GC XVII	(blank)	0.16
NEOPRENE UNIT GC XVII	(blank)	1.40
UNAUTHORIZED DISCHARGE - CHLOROPRENE UNIT	(blank)	0.00
UNAUTHORIZED DISCHARGE - NEOPRENE UNIT	(blank)	0.09
Grand Total		125.76

Message

From: Gray, David [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=881C62B1E54142388C1DE2F8E3799C33-GRAY, DAVID]
Sent: 12/17/2015 7:15:19 PM
To: Hubbard, Joseph [Hubbard.Joseph@epa.gov]; Durant, Jennah [Durant.Jennah@epa.gov]; Martindale, Cary [martindale.cary@epa.gov]; Vela, Austin [Vela.Austin@epa.gov]; Assunto, Carmen [assunto.carmen@epa.gov]; Fanning, Cynthia [fanning.cynthia@epa.gov]; Fitch, Bruce [fitch.bruce@epa.gov]; Acevedo, Janie [acevedo.janie@epa.gov]
CC: Taheri, Diane [Taheri.Diane@epa.gov]; Bokun, Lisa [Bokun.Lisa@epa.gov]
Subject: Update
Attachments: NATA LaPlace Communication Information v2.docx

Here is the latest information. We are running a bit late on the website and it will be live in about 1 hour. Please monitor activity and send updates/follow up to me.

David

Message

From: Gray, David [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=881C62B1E54142388C1DE2F8E3799C33-GRAY, DAVID]
Sent: 12/17/2015 7:27:48 PM
To: Pettigrew, George [pettigrew.george@epa.gov]
Subject: FW: NATA 2011 to be posted at 3PM
Attachments: NATA 2011 Fact Sheet - FINAL - clean.docx; NATA 2011 External FAQ.docx; 2011 NATA KEY MESSAGESV3.docx; NATA LaPlace Communication Information v2.docx

George – Here is a copy of our internal materials. I am also adding our comm information for Louisiana.

Hi All – NATA will soon be live at: www.epa.gov/national-air-toxics-assessment .

We are not issuing a press announcement for NATA 2011, but in case you receive press inquiries, please refer them to Enesta Jones in the HQ press office (202-564-7873, jones.enesta@epa.gov). Since the subject matter is pretty complex, some inquiries are apt to need close regional-HQ coordination, so we'll take them on a case-by-case basis.

Please do not forward this e-mail to anyone without an EPA badge. The best source for information to share will be the website: www.epa.gov/national-air-toxics-assessment .

Attached are:

INTERNAL:
Key messages

EXTERNAL:
Public Fact sheet
Public Q/As

Thanks – John

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John Millett
Director, OAR Communications
Desk: 202-564-2903
Cell: 202-510-1822
~~~~~~~~~~~~~~~~

2011 National-scale Air Toxics Assessment

Frequently Asked Questions

General Background Questions

1. What are air toxics and what health effects are caused by exposure to them?
2. What is the National-scale Air Toxics Assessment?
3. How can NATA information be used?
4. How should I NOT use NATA results?
5. Are there any risks from exposure to air toxics that are not covered by NATA?
6. Who is responsible for controlling air toxics?
7. What should I do if I am concerned about air toxics in my area?
8. How does NATA differ from other screening tools used by EPA?
9. How do I know which screening tool to use?

Emissions, Modeling, Methods Questions

1. Which air toxics are included in NATA?
2. What are the steps in the National-scale Air Toxics Assessment?
3. What is CMAQ and how was it used in the 2011 NATA?
4. Why were Alaska, Hawaii, Puerto Rico, the Virgin Islands, and other territories not included in the CMAQ modeling?
5. Why are all the estimates from 2011 and not more recent?
6. Why is EPA using computer modeling techniques instead of actual measurements to estimate concentrations and exposures?
7. What improvements have been made in the 2011 NATA?
8. What kind of changes were made in the 2011 NATA as a result of the review by the States?
9. How did EPA characterize risk from modeled 2011 exposure estimates?
10. How does EPA estimate cancer risk?
11. Why are primary biogenic emissions not included from Alaska, Hawaii, Puerto Rico, and the Virgin Islands?
12. A portion of the estimated risk is due to "background". What is background?
13. A portion of the estimated risk is due to secondary formation, and it varies across the country. What is it?

Risk Background Questions

1. What does "1-in-1 million" cancer risk mean?
2. What does EPA believe constitutes an acceptable level of risk?
3. How were the cancer risk estimates affected by EPA's Guidelines for Carcinogen Risk Assessment (EPA/630/P-03/001F) and Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (EPA/630/R-03/003F)?
4. Why did the EPA use the (higher) unit risk estimate (URE) for formaldehyde reported in the Agency's Integrated Risk Information System (IRIS)?
5. Why aren't results for dioxins included?

Results Questions

1. Does the assessment show that the risk is high?

2. What do these estimates mean to me?
3. How accurate is the assessment?
4. How does the cancer risk identified in this assessment compare to a lifetime cancer risk from all causes?
5. Risk data is shown down to the census tract level. Are the results accurate enough to draw conclusions at this scale?
6. Based on this NATA, can EPA determine which areas or populations are at greatest risk from air toxics?
7. How does this assessment of 2011 air toxics data compare to previous national-scale assessments?
8. Has air quality improved?
9. Can NATA be used to evaluate exposures at specific points of interest, e.g., near schools, day care centers, hospitals, etc.?
10. I am able to locate a specific facility location from the map and get a risk at that location. How accurate is that risk value?
11. Why is there risk from biogenic emissions?

Fire Questions

1. How did EPA treat fires in the 2011 NATA?
2. What does NATA show regarding impacts of wildfires, prescribed fires and agricultural burning?
3. What are the uncertainties in risks from emissions from fires?
4. What is being done to reduce air pollution from wildfires and prescribed fires?

Mobile Source Questions

1. How accurate are risk estimates for mobile sources in my census tract?
2. Onroad and nonroad mobile sources are large contributors to overall risk in the 2011 assessment. What is the EPA doing to reduce emissions of mobile source air toxics?
3. Why are only noncancer risks calculated for diesel PM? Isn't there a cancer unit risk available?
4. There has been increased concern about the health effects associated with pollution near roads. What can the 2011 NATA tell us about communities potentially at greater health risk from exposure to near-road pollution?
5. NATA results show significant risks associated with a port in my community. How accurate are the risk estimates associated with ports, and what can be done to reduce these risks.
6. What does the 2011 NATA say about airport risks?

General Background Questions

1: What are air toxics and what health effects are caused by exposure to them?

A: Air toxics, also known as toxic air pollutants or hazardous air pollutants, are those pollutants that cause or may cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental and ecological effects.

Examples of toxic air pollutants include benzene which is found in gasoline; tetrachloroethylene which is emitted from some dry cleaning facilities; and methylene chloride which is used as a solvent and paint stripper by a number of industries. Section 112 of the Clean Air Act identifies 187 air toxics emitted from stationary and mobile sources and subjects the sources of their emissions to regulations in order to protect public health. Through appropriate rulemaking, the Clean Air Act list may be modified. For more information on the Clean Air Act, see [HYPERLINK "http://www.epa.gov/air/caa/%20%20%20"]. For more information on air quality, see [HYPERLINK "http://www.epa.gov/air/basic.html"]

The EPA has classified many of these substances as "carcinogenic to humans," "likely to be carcinogenic to humans," or "suggestive evidence of carcinogenicity to humans." Air toxics are associated with a wide variety of noncancer adverse health effects that include neurological, cardiovascular, liver, kidney, and respiratory effects as well as effects on the immune and reproductive systems. The seriousness of the harm can range from headaches and nausea to respiratory arrest and death. Severity varies with the amount and length of exposure, the nature of the chemical itself (e.g., how it interacts with various organs and organ systems), and the unique behaviors and sensitivities of individual people. Some chemicals pose particular hazards to people of certain ages or genetic backgrounds.

2: What is the National-scale Air Toxics Assessment?
A: The National-scale Air Toxics Assessment (NATA) is EPA's comprehensive evaluation of air toxics in the United States, based on modeled air quality. EPA developed the NATA as a tool for EPA and State/Local/Tribal Agencies to prioritize air toxics, emission sources, and locations of interest for further study in order to gain a better understanding of risks. NATA is a state-of-the-science screening tool that does not incorporate refined information about emission sources, but rather, uses general information about sources to develop estimates of risks using analytical methods. NATA assessments provide screening-level estimates of the risk of cancer and other serious health effects from breathing (inhaling) air toxics in order to inform both national and more localized efforts to identify and prioritize air toxics, emission source types, and locations that are of greatest potential concern in terms of contribution to population risk. This in turn helps air pollution experts focus limited analytical resources on areas or populations where the potential for health risks are highest. NATA provides a snapshot of the outdoor air quality and the risks to human health that would result if air toxic emission levels remained unchanged. A more detailed explanation of NATA and the methods used may be found in the [HYPERLINK "http://www.epa.gov/national-air-toxics-assessment/2011-nata-technical-support-document"].

3: How can NATA information be used?
A: Specifically, EPA uses NATA results to:

- identify pollutants and source categories of greatest concern,
- improve understanding of health risks posed by air toxics,
- help set priorities for the collection of additional information,
- set priorities for improving emission inventories,
- expand and prioritize EPA's air toxics monitoring network,
- support communities in designing their own local assessments,
- enhance targeted risk reduction activities,
- link air toxics to the Criteria Pollutant Program, and
- help inform community and local air toxics programs

4: How should I NOT use NATA results?
A: NATA assessments should <u>**not**</u> be used for the following:

- as a definitive means to pinpoint specific risk values within a census tract,
- to characterize or compare risks at local levels such as between neighborhoods,

- to characterize or compare risks between states,
- to examine trends from one NATA year to another,
- as the sole basis for developing risk reduction plans or regulations,
- as the sole basis to control specific sources or pollutants, or
- as the sole basis to quantify benefits of reduced air toxic emissions.

It should also be noted that although results are reported at the census tract level, average risk estimates are far more uncertain at this level of spatial resolution than at the county or state level. Even though some of the methods used to conduct NATA are similar to those used in air-related risk assessments conducted under the Clean Air Act mandate (such as residual risk assessments of hazardous air pollutant (HAP) emissions from point sources, or assessments of exposures to criteria pollutants for evaluations of National Ambient Air Quality Standards), NATA fundamentally differs from such assessments in that it is not a refined assessment, and it is not used as the sole source of information leading to regulations or guiding the enforcement of existing rules.

5: Are there any risks from exposure to air toxics that are not covered by NATA?
A: This assessment is focused on characterizing one piece of the air toxics risk picture at a particular point in time. NATA looks at human health impacts from estimated, chronic, inhalation exposure due to outdoor sources of air toxics, assuming the emissions upon which NATA are based remain constant throughout one's lifetime, not today's levels or projected levels. NATA does not include:

- Cancer risks associated with diesel particulate matter, which are likely to be substantial (see question 3 below in the Mobile Sources Section).
- Non-inhalation exposures, such as ingestion and dermal exposures. These additional pathways are especially important for pollutants that persist in the environment and bioaccumulate (e.g., mercury and polychlorinated biphenyls).
- Exposures and risk very near to specific sources or highly-localized hotspot levels, such as some types of occupational or near roadway-related exposures.
- Individual extremes in exposure. All risk estimates are based on exposure estimates for the median individual within each census tract. EPA considers this exposure to be a "typical" exposure for that tract. Some individuals may have substantially higher or lower exposures based on where they live within that tract or spend the majority of their time.
- Emissions from indoor sources of air toxics. For certain air toxics and for certain indoor situations, total long-term human exposures can be significantly influenced and sometimes dominated by exposures from indoor sources.
- Risk estimates for chemicals that do not have adequate dose-response information (e.g., assessment does not quantify cancer risk from diesel PM).
- Impacts of non-routine increases in facility emissions due to, for example, equipment startups, shutdowns, malfunctions, and upsets.
- Assessment of adverse environmental effects, or other welfare effects.

6: Who is responsible for controlling air toxics?
A: The responsibility is shared among EPA, state, local and tribal air programs. EPA sets national standards for air toxics emissions. The state, local, tribal programs are responsible for implementing these rules. In addition, some state, local, and tribal programs have their own air toxics rules. Some studies conducted by state, local, and tribal programs can be found here.

7: What should I do if I am concerned about toxics in my area?
A: Contact your State, local or Tribal air program. A list of state and local programs is available at: [HYPERLINK "http://www.4cleanair.org/agencies"] EXIT Disclaimer

Information on Tribal programs and EPA's Regional Tribal Program coordinators can be found at: [HYPERLINK "http://www2.epa.gov/tribal"]

8: How does NATA differ from the other screening tools used by EPA?
A: NATA is a national assessment that estimates cancer and noncancer risks from inhalation of air toxics. NATA is intended as a screening tool to help users prioritize pollutants, types of emission sources, and locations of interest for further study. NATA is also incorporated into other Agency screening tools, including [HYPERLINK "https://www2.epa.gov/ejscreen"] and [HYPERLINK "http://www2.epa.gov/healthresearch/community-focused-exposure-and-risk-screening-tool-c-ferst"].

The focus of the [HYPERLINK "https://www2.epa.gov/ejscreen"] screening tool is to assist stakeholders in making informed decisions about potential environmental justice issues by identifying the locations of potentially overburdened and vulnerable populations. EJSCREEN output includes environmental justice indexes that combine demographic variables with a single environmental indicator. The index provides a comparison between areas.

The focus of [HYPERLINK "http://www2.epa.gov/healthresearch/community-focused-exposure-and-risk-screening-tool-c-ferst"] is to provide information and community mapping through an assessment tool that is designed to help assess screening-level exposures and risks. To provide guidance and information that helps inform in decision making with communities, C-FERST provides access to resources that can be used to help communities learn more about their environmental issues and to develop solutions.

9: How do I know which screening tool to use?
A: The screening tool you select depends on your main area of interest. Those primarily interested in inhalation risks and pollutant-specific assessment may find NATA to be the best tool. Those interested in how the environmental quality differs by demographics will want to start with [HYPERLINK "http://www.epa.gov/ejscreen"]. For communities interested in their specific area with an interest in exploring community strategies to address a specific issues (e.g., brownfield development), [HYPERLINK "http://www.epa.gov/healthresearch/community-focused-exposure-and-risk-screening-tool-c-ferst"] is a good place to start. Users could also use the tools in sequence by identifying communities of interest with [HYPERLINK "http://www.epa.gov/ejscreen"] and then using CFERST to take a closer look at that community and using CFERST guides for community assessments and potential solutions.

Emissions, Modeling, Methods Questions

1: Which air toxics are included in NATA?
A: The 2011 NATA is a national-level risk assessment based on the emissions of air toxics that produces census-tract level estimates of ambient and exposure concentrations for 180 air toxics, plus diesel PM, which EPA assessed for noncancer effects only. Using the concentration estimates for the 180 air toxics plus diesel PM, NATA estimates cancer risk and noncancer hazard for 138 of these. For 43 air toxics, concentration estimates but no health effects information are available. A list of all air toxics assessed and an indication of what types of results were generated for each can be found in Appendix B of the 2011 NATA

[HYPERLINK "http://www.epa.gov/national-air-toxics-assessment/2011-nata-technical-support-document"].

The following individual listed air toxics were not included in this assessment because either no emission information was reported for them in 2011 or emission estimates useful for modeling could not be determined reliably from their reported emissions (e.g., radionuclides).

- 2,3,7,8-tetrachlorodibenzo-p-dioxin,
- Other dioxins/furans
- asbestos,
- fine mineral fibers,
- radionuclides,
- DDE
- Diazomethane, and
- Hexamethylphosphoramide.

2: What are the steps in the National-scale Air Toxics Assessment?
A: NATA includes the following four major steps for assessing air toxics across the United States (and also for Puerto Rico and the U.S. Virgin Islands):

1. **Compile a 2011 national emissions inventory of air toxics from outdoor sources.** EPA compiled measured or estimated emissions data reported by sources, States, and others. EPA also estimated mobile source and other emissions using models, measurements, and a quality-control process. This compilation of information is called the [HYPERLINK "http://www3.epa.gov/ttn/chief/net/2011inventory.html"]. The types of emission sources in the inventory include major stationary sources (e.g., large waste incinerators and factories), area and other sources (e.g., dry cleaners, small manufacturers), and both onroad and nonroad mobile sources (e.g., cars, trucks, and boats). Emissions from fires and biogenic sources are also included. For 2011, EPA used the NEI as the starting point and developed the 2011 NATA inventory which was used as the source of input information for modeling.
2. **Estimate ambient air concentrations based on the 2011 emissions.** The 2011 NATA emissions information for all air toxics were used as inputs to the air dispersion model AERMOD (as run in the[HYPERLINK "http://www.epa.gov/ttn/fera/human_hem.html"], and the Community Multi-scale Air Quality (CMAQ) to estimate ambient concentrations. Forty HAP were modeled in CMAQ and all HAP were modeled in AERMOD. The results were then combined using the hybrid approach to take advantage of the strengths of both models. (The [HYPERLINK "http://www.epa.gov/national-air-toxics-assessment/2011-nata-technical-support-document"] contains lists of the CMAQ HAP and the AERMOD HAP, as well as a description of the hybrid approach.) As part of this modeling exercise, EPA compared estimated ambient concentrations to available ambient air toxics monitoring data to evaluate model performance.
3. **Estimate population exposures.** The estimated ambient concentrations are used as inputs to an exposure model, the Hazardous Air Pollution Exposure Model ([HYPERLINK "http://www2.epa.gov/fera/human-exposure-modeling-hazardous-air-pollutant-exposure-model-hapem"]). Estimating exposure is a key step in determining potential health risk.

People move from one location to another, for example from outside to inside. Thus, exposure isn't the same as it would be if people stayed in one location. People also breathe at different rates depending on their activity levels, so the amounts of air they take in vary in time. For these reasons, the average concentration of a pollutant that people breathe, or their exposure concentration, might be higher or lower than the concentration at a fixed location (i.e., ambient concentration).

4. **Characterize potential public health risks due to inhalation of air toxics.**
   Cancer and noncancer health effects were characterized using available information on air toxics health effects, current Agency risk assessment and risk characterization guidelines, and estimated population exposures. This characterization quantifies, as appropriate, potential cumulative risks to public health due to inhalation of air toxics from outdoor emission sources assuming a lifelong exposure to 2011 levels of emissions. It also discusses the uncertainties and limitations of the NATA assessments. More detailed information about these steps can be found in the [HYPERLINK "http://www.epa.gov/national-air-toxics-assessment/2011-nata-technical-support-document"].

3: What is CMAQ and how was it used in the 2011 NATA?
A: CMAQ, EPA's [HYPERLINK "http://www2.epa.gov/air-research/community-multi-scale-air-quality-cmaq-modeling-system-air-quality-management"], is used to conduct urban- to regional-scale simulations of multiple air quality issues. The model provides complete coverage over space and time of the lower 48 United States. CMAQ accounts for key physical and chemical properties that affect how pollutants are transported and react with other pollutants and gases in the atmosphere. A primary use of CMAQ is to predict how emissions of multiple air pollutants, emitted by numerous sources at the same time, affect the concentration of these pollutants across the U.S.

Several features of CMAQ that contribute to its strengths for the 2011 NATA include: conservation of mass (i.e., if some quantity of a pollutant is transported from an area, it is accounted for in the new area); consideration of long-range transport of pollutants; and estimated concentrations of secondarily-formed pollutants (e.g., formaldehyde). In the 2011 NATA, EPA used CMAQ for about 40 pollutants including emissions from point, nonpoint, mobile, and fires.

In addition to the CMAQ model, the dispersion model AERMOD was run for all of the NATA pollutants at all U.S. census tracts, for point, nonpoint, and mobile sources. Dispersion modeling uses mathematical formulations to characterize the atmospheric processes that disperse a pollutant emitted by a source. The resulting ambient concentrations estimated by both CMAQ and AERMOD were then used together, in a hybrid approach, to take advantage of the features of each model. Detailed information on the approach used with CMAQ and AERMOD can be found in the[HYPERLINK "http://www.epa.gov/national-air-toxics-assessment/2011-nata-technical-support-document"]).

4. Why were Alaska, Hawaii, Puerto Rico, the Virgin Islands, and other territories not included in the CMAQ modeling?
A: The CMAQ modeling performed for the 2011 NATA used a single domain that covers the entire continental U.S. and large portions of Canada and Mexico. However, this domain does not include Alaska, Hawaii, Puerto Rico, or the Virgin Islands (which is consistent with previous regulatory modeling exercises conducted by EPA). Air quality modeling done for areas outside of the lower 48 states is typically performed by incorporating data that is tailored to the unique weather and terrain that influence these areas.

Incorporating this additional data for the NATA air quality modeling would have required significantly more computing resources. However, users can find additional information about air toxics emissions in these areas by using the NATA mapping tool.

5: Why are all the estimates for the year 2011 and not more recent?
A: We used 2011 data because emission inventories from that year were the most complete and up-to-date available. Working with industries and States, we update our air toxics emission inventories every 3 years and are now gathering and compiling 2014 data. The risk estimates assume a lifelong exposure to 2011 levels because calculating projected exposures based on projections to more recent years would be substantially more complex and uncertain.

6: Why is EPA using computer modeling techniques instead of actual measurements to estimate concentrations and exposure?
A: The ability to directly measure ambient air toxics concentrations evenly across the country is currently limited. Such measurements are available for only a subset of air toxics in relatively few locations and for small study populations. Therefore, computer models that can estimate ambient air toxics concentrations and population exposures nationwide are needed to conduct large-scale, comprehensive assessments such as NATA.

Measurement data are used and will continue to be used to evaluate the models to better understand some of the uncertainties in such assessments and to improve modeling tools. For example, in the Section 3.3 of the [HYPERLINK "http://www.epa.gov/national-air-toxics-assessment/2011-nata-technical-support-document"], Model Evaluation, there is an explanation of the results of the model-to-monitor comparisons done for the 2011 NATA. In addition, annual statistics for air toxics monitoring data are provided in the NATA Map Application. Air toxics monitoring data can be obtained from the [HYPERLINK "https://http/www3.epa.gov/ttn/amtic/toxdat.html" \l "data"] in Microsoft ACCESS format for historical data years up to 2013 or, from EPA's [HYPERLINK "https://aqs.epa.gov/aqsweb/documents/data_mart_welcome.html" \l "basicinfo"] for the most up-to-date data.

7: What improvements have been made in the 2011 NATA?
A: The following changes were incorporated in the 2011 NATA. Many of the changes adopted in the 2005 NATA were carried over to the 2011 NATA: they are not repeated here.

- Emissions
    - Used 2011 NEI v2 based on updated information.
    - Included wild fires.
    - Biogenic emissions were split out as separate primary emissions category (were included within secondary category in 2005 NATA).
    - More complete inventory for oil and gas emissions resulting from new EPA nonpoint oil and gas estimation tool and state data submittals.
    - Improved spatial allocation of county-level oil and gas emissions
    - Better characterization of airports
    - Over 750 rail yards were included as point sources.
    - The updated model MOVES2014 was used to develop mobile on-road emissions.
    - Commercial marine vessel emissions were better spatially allocated

- Prescribed burning and agricultural burning emissions were generated using updated models
- Updated emission factors collected from rule development were used where available.

- Modeling
  - AERMOD was used to model all NATA pollutants emitted from point, nonpoint, and mobile sources for all U.S. Census tracts.
  - CMAQ was used to model about 40 NATA pollutants for the lower 48 states at 12 km grid resolution to capture chemistry and long-range transport. Ran for point, nonpoint, mobile sources, and fires.
  - Ambient concentrations from both models were combined using a hybrid approach.
  - Updated background concentrations based on remote background concentration estimates and used for pollutants not modeled in CMAQ.
- Risk Characterization
  - HAPEM7 was used to estimate exposure concentrations.
  - Dose-response values were updated with latest science (IRIS, CalEPA, ATSDR).
  - Several benchmarks have been updated since the 2005 NATA.
  - New web-based map to display results.

Although EPA is continually refining and updating the assessment methods, it is important to remember that NATA is a screening-level assessment. The intent is to identify hazardous air pollutants resulting in high exposures or census tracts where population exposures may be of concern. These areas could then utilize more refined assessments (e.g., monitoring or site-specific risk assessments), to develop a more thorough understanding of these "hot-spot" exposures.

8: What kind of changes were made in the 2011 NATA as a result of the review by the States?
A: EPA appreciates the time taken by State, local, and tribal air agencies to preview and comment on the preliminary results of this assessment. It is thorough reviews such as these that enable us to continually improve our assessments, thereby increasing the benefit to all users of the results. The 2011 NEI v1 review led to changes by more than 25 agencies which were incorporated in the 2011 NEI v2. We received over 200 sets of comments from nearly 50 State, local, and tribal agencies during review of the risk results based on the 2011 NEI v2. These comments along with review by EPA resulted in over 45,000 revisions to NATA inventories. These comments covered the areas of:

- Facility changes:
  - Removal of facilities (duplicates or closed prior to 2011)
  - Geographic coordinate changes
  - Facility changes
  - Facility NAICS and SCC changes Revisions to stack parameters

- Emission changes:
  - Additions, deletions, and recalculations
  - Changes to chromium speciation, hexavalent chromium percentage
  - Revision of TRI emissions which were based on midpoint of range (for facilities reporting a range estimate to TRI)
  - Removal of estimates based on older, outdated methodology (ethylene oxide sterilizers)

Most of the comments were addressed by making the appropriate changes to the 2011 NEI and NATA inventories, and the final 2011 NATA now reflects these changes. Additional comments focused on methodological and toxicological questions, many of which are addressed or answered in various sections of the NATA webpage.

9. How did EPA characterize risk from the modeled 2011 exposure estimates?

A: To evaluate a chemical's potential to cause cancer and other adverse health effects, EPA examines the adverse effects a particular substance causes (in a "hazard identification"), determines the exposure to the population (in an "exposure assessment"), and evaluates the specific exposures at which these effects might occur (in a "dose-response assessment"). The evaluation is based on studies of humans, animals, and microorganisms, and is usually published in peer-reviewed scientific journals. In this national-scale assessment, EPA combined information from dose-response assessments with modeled exposure estimates in a "risk characterization" to describe the potential that real-world exposure to air toxics compounds might cause harm. The EPA also examined the uncertainties surrounding the characterization of risk.

10. How does EPA estimate cancer risk?

A: At present, EPA typically assumes a linear relationship between the level of exposure and the lifetime probability of cancer from an air toxics compound. It expresses this dose-response relationship for cancer in terms of a unit risk estimate. The unit risk estimate (URE) is an upper bound estimate of an individual's probability of contracting cancer over a lifetime of exposure to a concentration of one microgram of the pollutant per cubic meter of air. Risks from exposures to concentrations other than one microgram per cubic meter are usually calculated by multiplying the actual concentration to which someone is exposed by the URE. For example, the EPA may determine the URE of a particular air toxics compound to be one in ten thousand per microgram per cubic meter. This means that a person who inhales air containing an average of one microgram per cubic meter for 70 years would have (as an upper bound) one chance in ten thousand (or 0.01 percent) of contracting cancer as a result. The EPA has developed UREs for many substances, and continues to re-examine and update them as knowledge improves. More information on UREs can be found in the [HYPERLINK "http://www2.epa.gov/iris"]. The UREs used in this assessment, are included Appendix H of the [HYPERLINK "http://www.epa.gov/national-air-toxics-assessment/2011-nata-technical-support-document"].

11: Why are primary biogenic emissions not included from Alaska, Hawaii, Puerto Rico, and the Virgin Islands?

A: Primary biogenic emissions were only modeled using the CMAQ air quality model. Alaska, Hawaii, Puerto Rico, the Virgin Islands, and other territories are not currently included in CMAQ. See the answer to question 4 for more information.

12: A portion of the estimated risk is due to "background". What is background?

A: In NATA, background risk represent the contributions to outdoor air toxics concentrations resulting from natural sources, persistence in the environment of past years' emissions, and long-range transport from distant sources. Background concentrations could be levels of pollutants that would be found in a particular year, even if there had been no recent manmade emissions. The vast majority of risk from the NATA background concentrations is from carbon tetrachloride, a ubiquitous pollutant that has few sources of emissions but is persistent due to its long half-life. Background was estimated as remote concentration estimates from monitoring and emissions.

13. A portion of the estimated risk is due to secondary formation, and it varies across the country. What is secondary formation?
A: Like ozone, some hazardous air pollutants, such as formaldehyde and acetaldehyde are formed through chemical reactions that occur in the atmosphere due to emissions of volatile organic compounds (VOC) and oxides of nitrogen (NOx). Secondary formation was estimated in 2011 NATA using the CMAQ model.

Risk Background Questions

1: What does "1-in-1 million" risk mean?
A: A risk level of 1-in-1 million implies a likelihood that one person, out of one million people that are exposed to the same concentration of the same pollutant, would contract cancer if exposed continuously (24 hours per day) to that specific concentration over 70 years (an assumed lifetime). This risk would be an excess cancer risk that is in addition to any cancer risk borne by a person not exposed to these air toxics.

2: What does EPA believe constitutes an acceptable level of risk?
A: Unlike other pollutants that EPA regulates, air toxics have no universally-applicable, pre-defined risk levels that clearly represent acceptable or unacceptable thresholds. However, EPA has made case-specific determinations and described certain general presumptions that apply to particular regulatory programs. The 1989 Benzene National Emission Standard for Hazardous Air Pollutants (NESHAP) rule set up a two-step, risk-based decision framework for the NESHAP program. This rule and framework are described in more detail in EPA's [HYPERLINK "http://www2.epa.gov/fera/residual-risk-report-congress-1999"]. First, the rule sets an upper limit of risk acceptability of about 1-in-10,000 (or 100-in-1 million) lifetime cancer risk for the most exposed individual. In the rule, we explained, "The EPA will generally presume that if the risk to that individual [the Maximum Individual Risk] is no higher than approximately 1 in 10 thousand, that risk level is considered acceptable and EPA then considers the other health and risk factors to complete an overall judgment on acceptability." Second, the rule set a target of protecting the greatest number of persons possible to an individual lifetime risk level no higher than approximately 1-in-1 million. These determinations called for considering other health and risk factors, including the uncertainty in the risk assessment, in making an overall judgment on risk acceptability.

Unlike cancer risk, there currently is no framework for determining the acceptability of noncancer risks. Aggregate exposures equal to or below a hazard index (HI) of 1.0 derived using target organ specific hazard quotients likely will not result in adverse noncancer health effects over a lifetime of exposure and would ordinarily be considered acceptable. However, an HI greater than 1.0 does not necessarily suggest a likelihood of adverse effects nor does it imply an unacceptable level of effect. Instead, the acceptability of exceedances is evaluated on a case-by-case basis, considering such factors as the confidence level of the underlying health data, the uncertainties , the slope of the dose-response curve (if known), the magnitude of the exceedances, and the numbers or types of people exposed at various levels above the RfC.

3: How were the cancer risk estimates affected by EPA's Guidelines for Carcinogen Risk Assessment (EPA/630/P-03/001F) and Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (EPA/630/R-03/003F)?
A: NATA is consistent with the 2005 revised [HYPERLINK "http://www.epa.gov/ncea"] that makes recommendations with regard to estimating cancer risks to children. The recommendations concerning children's risk have been implemented for the following HAPs: acrylamide, benzidine, chloroprene, coke oven emissions, ethyl carbamate, methylene chloride, nitrosodimethylamine, and PAHs by applying a risk factor of 1.6 to account for the increase in lifetime cancer risk due to childhood exposures. This was done

because these HAPs have been shown to have a mutagenic mode of action and because there is no chemical-specific data to show that there are differences between children and adults in the way they respond to exposure to these agents.

In contrast, vinyl chloride does have chemical-specific data available regarding children's exposure and risk. These data were used in the derivation of the unit risk estimate (URE) (see the [HYPERLINK "http://cfpub.epa.gov/ncea/iris/index.cfm"] for a more thorough explanation). Therefore, the URE for vinyl chloride that is used in the 2011 NATA and is presented in Appendix H of the Technical Support Document, already reflects the risk due to childhood exposures, and no further adjustment is necessary.

For trichloroethylene, a carcinogen with a mutagenic mode of action, the age dependent adjustment factor for the URE only applies to the portion of the slope factor reflecting risk of kidney cancer. For full lifetime exposure to a constant level of trichloroethylene, the URE was adjusted by a factor of 1.12.

A brief explanation of the adjustments to risk follows: The [HYPERLINK "http://www.epa.gov/raf/publications/cancer_guidelines/sup-guidance-early-life-exp-carcinogens.htm"] recommends that risks to children be adjusted for carcinogenic chemicals acting through a mutagenic and linear mode of action (i.e., chemicals that cause cancer by damaging genes). Where available data for the chemical are adequate, they should be used to develop age-specific potency values (e.g., vinyl chloride). Where available data do not support a chemical-specific evaluation of differences between adults and children, the Supplemental Guidance recommends the use of the following default adjustment factors for early-life exposures: increase the carcinogenic potency by 10-fold for children up to 2 years old, and 3-fold for children from 2 to 15 years old. These adjustments have the aggregate effect of increasing by about 60 percent (i.e., a factor of 1.6), the estimated risk for a 70-year (lifetime) constant inhalation exposure.

It is important to keep in mind that EPA recommends that the default adjustments be made only for carcinogens (1) acting through a mutagenic mode of action, (2) for which a linear dose response has been assigned, and (3) for which data to evaluate adult and juvenile differences are not available. **The default adjustments are not recommended for carcinogens whose mode of action is unknown.** EPA will determine as part of the IRIS assessment process which substances meet these criteria, and future national-scale assessments will reflect adjustments for those substances.

4: Why did EPA use the higher potency or unit risk estimate (URE) for formaldehyde reported in the Agency's Integrated Risk Information System (IRIS)?

A: For this 2011 NATA assessment, consistent with the 2005 NATA, we used the existing IRIS URE for formaldehyde. That URE is 1.3 x 10-5 per μg/m³. The EPA's Office of Research and Development (ORD) believes there is sufficient published, peer-reviewed research to support the use of the existing IRIS URE. EPA is currently updating the IRIS file for formaldehyde to consider new science published in the peer-reviewed and epidemiologic literature. This updated IRIS assessment is not expected to be completed in the release of the 2011 NATA. Therefore, for this assessment and in the near-term, EPA is using the existing IRIS URE for formaldehyde. In previous NATA analyses (1999 and 2002), EPA utilized a cancer potency for inhalation exposure to formaldehyde derived from modeling sponsored by what was then the Chemical Industry Institute for Toxicology (CIIT), now called the Hamner Institutes for Health Sciences.

5: Why aren't results for dioxin included?

A: We did not evaluate exposure and risk related to dioxins in the 2011 NATA because we did not evaluate the completeness or accuracy of the State, Local, and Tribal (S/L/T) agency data for dioxins. The most significant exposure route for dioxin is ingestion, not inhalation, so dioxin's relative contribution to NATA's inhalation risk estimates likely would not be large.

Results Questions

1: Does the assessment show that the risk is high?
A: Based on the results of the 2011 NATA and other studies, millions of people live in areas where air toxics may pose potential health concerns. While air quality continues to improve, more needs to be done to meet the Clean Air Act's requirements to reduce the potential exposure and risk from these chemicals.

EPA will continue to develop air toxic regulations as well as cost-effective pollution prevention and other control options to address indoor and urban pollutant sources that significantly contribute to risk.

The 2011 NATA estimates most individuals' risks to be between 1-in-1 million and 100-in-1 million, although the estimates for a small number of localized areas are higher than 100-in-1 million. Individuals and communities may be concerned about this. It is important to remember, however, that NATA was not designed as a definitive means to pinpoint specific risk values at local levels. The results are best used as a tool to prioritize pollutants, emissions sources and locations of interest for further investigation. It should be noted that the risks estimated by NATA do not consider ingestion exposure or indoor sources of air toxics. Also, 138 of the 180 air toxics, plus diesel PM, were assessed for risk in the 2011 NATA. (Diesel PM risk was only assessed for noncancer effects.) Therefore, these risk estimates may represent only a subset of the total potential risks associated with air toxics.

2: What do these estimates mean to me?
A: The results of NATA assessments provide estimates of the total amount of air toxics in an area as well as a general estimate of the geographic patterns of potential risk within each State and county in the U.S. in 2011. The results should not be used as an absolute measure of whether an individual's risk is high, but can be used to guide a more specific assessment in that area.

NATA was not designed to be a definitive tool for assessing risks because it has many limitations in data and methods. In addition, this assessment estimates risks associated with a modest range of individual behaviors using ambient levels averaged across a given census tract and averaged across multiple emissions points at a given facility. Such exposures are different from the exposures experienced by the most exposed individuals in a tract. The national-scale assessment contains uncertainties in emissions levels, exposure concentrations, and dose-response information, and lacks the level of refinement that might enable us to adequately assess the highest exposures found in localized "hot spots" (i.e., exposures to individuals who live close to emitting sources. Consequently, the results should not be used as an absolute measure of risk. Rather, they should be used to focus or target more refined measurement and assessment activities.

3: How accurate is NATA?
A: NATA is a state-of-the-science screening tool that does not incorporate refined information about emission sources, but rather, uses general information about sources to develop estimates of risks using analytical methods. NATA assessments provide screening-level estimates of the risk of cancer and other serious health effects from breathing (inhaling) air toxics in order to inform both national and more localized efforts to identify and prioritize air toxics, emission source types, and locations that are of greatest potential concern in terms of contribution to population risk.

Uncertainties are inherent in analyses like this (uncertainty in the emissions, actual population exposures, and dose-response or health effects information). For example, results are more uncertain at finer spatial scales. Thus, the results are appropriate to answer questions such as what pollutants or source sectors might be associated with higher risks than others, but not for determining exactly how many people are exposed to certain levels of absolute risk, or to determine what's safe and what's not.

4: How does the cancer risk identified in this assessment compare to lifetime cancer risk from all causes?
A: The 2011 NATA estimates that, on average, approximately 1 out of every 25,000 Americans (40-in-1 million) could contract cancer from breathing air toxics if exposed to 2011 emission levels for 70 years. These risks are unevenly distributed. Note that the NATA risk estimates are subject to limitations in the data, modeling, and default assumptions used routinely in any risk assessment. For example, NATA does not consider ingestion exposures or indoor sources of pollutants. Also, NATA only estimates chronic cancer risks for those air toxics that EPA is currently able to quantify with available dose-response data. Therefore, these risk estimates may represent only a subset of the total potential cancer risk associated with air toxics. NATA risk estimates should be compared with caution to other estimates of risk available.

5: NATA presents risk data down to the census tract level. Are the results accurate enough to draw conclusions at this scale?
A: EPA recommends that the census tract data be used to determine geographic patterns of risks within counties rather than to pinpoint specific risk values for each census tract. We developed NATA as a tool to inform both national and more localized efforts to collect air toxics information and characterize emissions (e.g., to prioritize pollutants and geographic areas of interest for more refined data collection such as monitoring). We feel reasonably confident that the patterns (i.e., relatively higher and lower levels of risk within a county), represent actual fluctuations in overall average population risks within the county. We are less confident that the assessment pinpoints the exact locations where higher risk exists, or that the assessment captures the highest risks in a county.

6: Based on NATA, can EPA determine which areas and/or populations are at greatest risk from air toxics?
A: This assessment has characterized geographic patterns and ranges of risks across the country. However, in general, we see that larger urban areas tend to carry larger risk burdens than smaller urban and rural areas because the emissions of air toxics tend to be higher in areas with more people. This trend is not universal and can vary from pollutant to pollutant, according to its sources, and may also be affected by exposures and risk from non-inhalation and indoor sources of exposure.

7: How does this assessment of 2011 air toxics data compare to previous national-scale assessments?
A: Due to the extent of improvements in our methodology (e.g., inventory improvements, modeling changes, background calculation revisions, and changes in health benchmarks), it is not meaningful to directly compare the 2011 assessment with previous assessments. Before changes in risk levels may be attributable to specific reduction efforts, these assessment changes must be considered. Improvements made to the methods since the 2005 NATA include, but are not limited to:

- The 2010 Census;
- Improved meteorological data from an increased number of stations;
- Improved emissions inventory or location information for oil and gas wells;
- Updated model for onroad emissions with specific emission categories for cold start emissions and extended idle exhaust;
- More complete port and underway inventories;

- Use of both CMAQ and AERMOD results to take advantage of the strengths of each model; and
- Use of a newer exposure model, HAPEM7.

8: Has air quality improved?
A: Since 1990, EPA has made significant progress in reducing emissions of air toxics from stationary, mobile, and indoor sources, finalizing National Emissions Standards for Hazardous Air Pollutants, or MACT standards, to reduce toxic emissions from over 174 categories of industrial sources. These rules result in 1.7 million fewer tons of air toxic emissions every year.

The EPA has also completed all of the required emissions standards for smaller sources known as area sources. Individual area source facilities typically have much lower emissions, but these sources can be numerous and widespread, including in locations that are heavily populated. In some urban areas, the sum of area source emissions for a category can be much greater than emissions from major sources. Examples of area sources are gas stations and dry cleaners. Measured from the 1990 baseline inventory, we have subjected between 90 and 100 percent of the area sources of urban air toxic pollutants to standards and have subjected 90 percent of the sources of seven potentially bio-accumulative toxic pollutants to standards. We project that all of the regulated area sources will be in compliance no later than 2014.

Many motor vehicle, nonroad equipment, and fuel emission control programs of the past have reduced air toxics and will continue to provide significant emission reductions in the future. Mobile source emissions have been reduced by approximately 50 percent, about 1.5 million tons of HAPs, since 1990. With additional fleet turnover, we expect these reductions to increase to 80 percent by the year 2030. In addition, mobile source diesel onroad and nonroad particulate matter decreased by about 27 percent from 1990 to 2005. Significant additional reductions (roughly 90 percent) are projected from 2005 to 2030 as many of the recent mobile source rules targeting diesel engines go into effect. Also, onroad and nonroad benzene emissions continue to decrease and monitoring data reflect this downward trend.

The public health improvement associated with these reductions in emissions will depend on a number of factors including which chemicals were reduced and where the reductions occurred relative to where people live and work.

9: Can the NATA assessment results be used to evaluate exposures at specific points of interest, e.g., near schools, day care centers, or hospitals?
A: NATA is not designed to predict actual risks at a specific location. NATA can be used to identify and prioritize air toxics, emission source types and locations which are of greatest potential concern in terms of contributing to population risk. It is a screening assessment which uses general information about sources along with other information about a facility (how tall the emissions stacks are, for example), to develop estimates of risks which are averaged over a census tract. It does not incorporate finely detailed information about emission sources, or other information that would be necessary to estimate risks at a specific location.

If a particular area is projected to experience low risks, and we are reasonably confident that the information on the significant emission sources is accurate, then we are fairly confident that risks actually are low, and there is no need to develop a more detailed assessment for that area. Conversely, if NATA estimated risks in a particular area are high, we know that refined assessments may be needed to accurately characterize risks these risks in that area.

This screening approach helps EPA and other air pollution control agencies to focus resources on areas where the potential for health risks are highest.

10: I am able to locate a specific facility location from the map and get a risk at that location. How accurate is that risk value?

A: Included in the results section of the 2011 NATA is a link to EPA's 2011 NATA Web App, a GIS Tool that can be used to develop maps that show the risk levels estimated for each census tract. Using these maps, it is then possible to identify the locations of specific buildings (e.g., schools, day care centers, hospitals, etc.), by entering their specific location information (address or latitude/longitude data) into the location query box. These buildings will then be located within a specific census tract and the NATA results for that tract are readily seen. It should be noted that the concentrations and risk estimated are averaged across the tract and do not necessarily reflect the possible impacts that could occur in the immediate vicinity of these buildings. More focused assessments (e.g., air toxics monitoring or local-scale risk assessments), would be needed to more accurately determine those concentrations and risks.

11. Why is there risk from biogenic emissions?

A: Biogenic emissions are emissions from natural sources, such as plants and trees. These sources emit hazardous air pollutants (HAP), such as formaldehyde, acetaldehyde, and methanol. Formaldehyde and acetaldehyde are key risk drivers in 2011 NATA. These sources also emit large quantities of other volatile organic compounds that are not classified as HAP but can react in the atmosphere with manmade emissions to form HAP.

In NATA, the biogenic emissions source group only includes the primary emissions, or those directly emitted into the atmosphere. (Any secondary formation of pollutants is included in the secondary source group.) Biogenic emissions are computed by a model that uses information about the vegetation and land use across an area, as well as environmental conditions in that area such as the temperature and the amount of solar radiation received by an area. More information about how biogenic emissions were computed and modeled in the 2011 NATA can be found in Section 2 of the TSD.

<u>Fire Questions</u>

1. Were fires included in the 2011 NATA?

A: Yes. Prescribed fires, wildfires, and agricultural burning were included in the 2011 NATA. EPA worked with the United States Forest Service (USFS) to develop the emissions estimates for wildfires and prescribed fires for the 2011 National Emissions Inventory (NEI). Some wildfire and prescribed fire data was based on remote sensing, state-submitted data as well as federal agency burn report data. The emissions estimates for agricultural burning fires came from state-submitted data or EPA estimates based on satellite data.

In the 2011 NATA, fires were modeled using CMAQ. CMAQ allows EPA to take into account details that are specific to the fires included. For example, in the NEI, EPA had day-specific emissions information for wildfires and fires from prescribed burning, compared to some other emissions sources that have annual average emissions. Also, using data about the high temperatures of the fires, EPA was able to account for the extra buoyancy of the emission plume and its vertical distribution in the atmosphere in the air quality modeling.

2. What does NATA show regarding impacts of wildfires, prescribed fires and agricultural burning?
A: Prescribed fires, wildfires, and agricultural burning were modeled together in NATA and their impacts cannot be separated. Emissions from each fire type are estimated separately in the NEI, but ambient concentrations, exposure concentrations, and risks are grouped together.

3. What are the uncertainties in risks from emissions from fires?
A: The magnitude and location of fires vary from year to year, so the long-term (or chronic) risk could be different from the risks presented in the 2011 NATA for more persistent and consistent sources. The CMAQ model includes only the 48 continental United States, so risks from fires are not estimated in Alaska, Hawaii, Puerto Rico, or the Virgin Islands.

4. What is being done to reduce air pollution from wildfires and prescribed fires?
A: The threat from wildfires can be mitigated through management of wildland vegetation. Prescribed fires are one tool that land managers can use to reduce fuel load, unnatural understory and tree density, thus helping to reduce the risk of catastrophic wildfires which are frequently of long duration and wide impact as well as causing hazardous levels of air pollutants. Allowing some wildfires to continue and the thoughtful use of prescribed fire can influence the occurrence of catastrophic wildfires, which may reduce the probability of fire-induced smoke impacts and subsequent health effects. The EPA is committed to working with federal land managers, other federal agencies, tribes and states to effectively manage prescribed fire use to reduce the impact of wildfire-related emissions. Prescribed fires are typically managed to minimize impacts through the use of [HYPERLINK "http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1046311.pdf"]. USDA and DOI both support efforts to conduct more research into smoke management through the [HYPERLINK "http://www.firescience.gov/"] and support broad interagency efforts to address smoke from both wildfires and prescribed fires through the [HYPERLINK "http://www.nwcg.gov/committees/smoke-committee"].

__**Mobile Source Questions**__

1: How accurate are risk estimates for mobile sources in my census tract?
A: NATA is a state-of-the-science screening tool that does not incorporate refined information about emission sources, but rather, uses general information about sources to develop estimates of risks using analytical methods. NATA assessments provide screening-level estimates of the risk of cancer and other serious health effects from breathing (inhaling) air toxics in order to inform both national and more localized efforts to identify and prioritize air toxics, emission source types, and locations that are of greatest potential concern in terms of contribution to population risk.

Accurately capturing the level of emissions for sources that move from place to place is challenging, particularly at fine spatial scales. For cars, trucks, buses and motorcycles, running emissions are allocated to census tracts using roadways, but activity on those roads is estimated using population, which is not always a good surrogate for traffic volume. Also, a substantial portion of highway vehicle emissions do not actually occur on roads, but are associated with vehicles starting or extended idling. Different surrogates are used for these emissions, which may not always accurately reflect the actual location of emissions.

There is even more uncertainty associated with nonroad sources, such as construction equipment, lawn and garden equipment, and recreational vehicles. Equipment population, age and activity values are not tracked systematically and must be estimated. In addition, emissions for these sources are often spatially allocated based on how land is used, and land use surrogates may not track well with actual activity. Furthermore, emissions are first allocated from the national to the county level in the NONROAD emissions model using one set of surrogates, then allocated to the census tract using a second set of surrogates. Thus, results for mobile sources are very uncertain at the census tract level and must be interpreted with caution. Results are more certain at larger geographic scales, such as regions and states.

It should be noted that EPA has recently integrated nonroad equipment emissions into the MOVES mobile source emissions model, and is planning to update activity estimates in the model. EPA is thus actively looking for data related to nonroad populations and activity, including geographic allocation data. EPA recognizes that these data can influence NATA results and therefore welcomes suggestions.

2: Onroad and nonroad mobile sources are large contributors to overall risk in the 2011 assessment. What is the Agency doing to reduce emissions of mobile source air toxics?

A: Mobile source hazardous air pollutant emissions have been reduced by approximately 50 percent, about 1.5 million tons since 1990. With additional fleet turnover, EPA expects these reductions to grow to 80 percent by the year 2030. In addition, mobile source diesel onroad and nonroad particulate matter emissions decreased by about 27 percent from 1990 to 2005. EPA projects significant additional reductions (roughly 90 percent) from 2005 to 2030 as many of the recent mobile source rules targeting diesel engines go into effect.

The EPA's most recent regulatory programs that significantly reduces mobile source air toxics are Tier 3 vehicle and fuel standards. These requirements, issued in 2014, will reduce emissions of air toxics from motor vehicles between 10 and 30 percent by 2030, depending on the pollutant.

Another recent regulatory program which reduced mobile source air toxics was the 2007 mobile source air toxics rule, which controlled the benzene content of gasoline, as well as vehicle emissions at cold temperatures and emissions from portable fuel containers. A recent assessment in Anchorage, Alaska found a reduction in ambient benzene of more than 50 percent, and the fuel benzene standard was a major contributing factor.

Other programs which are reducing mobile source air toxics are low-sulfur gasoline and diesel requirements, heavy-duty engine and vehicle standards, controls for small spark-ignition engines and recreational marine engines, the locomotive and commercial marine rule, standards for nonroad diesel engines, and the North American and Caribbean Emission Control Areas (ECAs) established to reduce emissions from ships.

Moreover, non-regulatory initiatives are also reducing mobile source air toxics. Examples include the National Clean Diesel Campaign, SmartWay, and EPA's Ports Initiative. In addition, EPA's Diesel Emissions Reduction Program (known as "DERA") was created to deploy pollution-controlling technologies in diesel fleets. Clean diesel projects yield an immediate public health and air quality benefit. The EPA estimates that for every dollar invested in reducing diesel exhaust, a community may achieve up to 13 dollars in public health benefits. From 2008 to 2013, the EPA awarded $569 million to retrofit or replace nearly 73,000 engines in vehicles, vessels, locomotives or other pieces of equipment. The EPA estimates that these projects will reduce emissions by 14,700 tons of fine particle pollution over the lifetime of the affected engines. For more information, visit [HYPERLINK "http://www2.epa.gov/cleandiesel"].

[HYPERLINK "http://www.epa.gov/otaq/index.htm"].

3: Why are only noncancer risks calculated for diesel PM? Isn't there a cancer unit risk available?

A: In this assessment, the potential risk from diesel PM is not addressed in the same fashion that other pollutants are. This is because EPA currently does not have a cancer unit risk estimate (URE) for diesel exhaust. In the 2002 [HYPERLINK "http://cfpub.epa.gov/ncea/risk/recordisplay.cfm;jsessionid=8FA1BFBA2A8FECAB120AE3E6370D747C.cfpub?deid=29060&CFID=52290035&CFTOKEN=67777048"], EPA concluded that diesel exhaust is likely to be carcinogenic to humans at environmental levels of exposure, but found that data from the health studies available at the time were not suitable for estimating cancer potency. However, EPA has concluded that diesel exhaust is among the substances that the national-scale assessment suggests pose the greatest risk. The 2002 Health Assessment Document evaluated several human epidemiology studies linking increased lung cancer with diesel PM. Exposures in several of these epidemiology studies are in the same range as ambient exposures throughout the United States.

Recently, several large epidemiology studies have been published that strengthen the weight of evidence that diesel exhaust is carcinogenic to humans. Two of these studies included quantitative estimates of exposure. Partly on the basis of these studies, the International Agency for Research on Cancer elevated its classification of diesel exhaust to "carcinogenic to humans" (Class 1) in 2012.

In 2012, EPA requested that the Health Effects Institute (HEI) evaluate the suitability of the new epidemiology studies for developing a cancer potency. In November 2015, HEI published its [HYPERLINK "http://pubs.healtheffects.org/view.php?id=446"] on these new studies, and concluded that they are sufficiently robust to estimate quantitative cancer risks and estimate uncertainties. EPA is currently reviewing this report.

These new studies underscore the importance of continuing to move forward in reducing emissions and exposures. Because diesel exhaust exposure is associated with serious negative health effects (both cancer and noncancer), EPA has and continues to take aggressive action to reduce diesel emissions through stringent standards for heavy trucks and engines. As a result of these aggressive actions, onroad diesel engines manufactured in 2007 and later have much more advanced emission control systems, resulting in much lower emissions with different composition than the diesel engines which formed the basis of the currently available epidemiology studies. Thus a cancer potency based on available epidemiology studies may not be relevant to newer technology diesels.

In addition to the potential for lung cancer risk, there is a significant potential for noncancer health effects based on the contribution of diesel PM to ambient levels of fine particles. Exposure to fine particles has been linked to significant public health impacts, including respiratory and cardiovascular effects, as well as premature mortality. These effects are not specifically presented in the national-scale assessment analysis but are considered in setting and implementing [HYPERLINK "http://www3.epa.gov/airquality/particlepollution/index.html"].

Also, EPA has designated a chronic Reference Concentration (RfC) for diesel PM of 5 $\mu g/m^3$ based on specific noncancer effects found in several animal studies which showed adverse changes in lungs such as inflammation and lesions. The 2011 NATA uses this value in estimating the diesel PM hazard quotient. More information on health effects associated with diesel PM can be found in the [HYPERLINK "http://cfpub.epa.gov/ncea/risk/recordisplay.cfm;jsessionid=8FA1BFBA2A8FECAB120AE3E6370D747C.cfpub?deid=29060&CFID=52290035&CFTOKEN=67777048"].

4: There has been increased concern about the health effects associated with pollution near roads. What can the 2011 NATA tell us about communities potentially at greater health risk from exposure to near-road

pollution?

A: There is a large body of research that consistently shows that populations spending a significant amount of time near heavily-traveled roads experience increased risks for a number of adverse health effects. Air quality measurement studies also indicate that elevated levels of pollution can be found near roads. Scientists are researching the relationship between the composition of the complex mixture of air toxics and other pollutants people are exposed to near these roads, and the observed adverse health effects.

Research findings indicate that roadways generally influence air quality within a few hundred meters – about 500-600 feet downwind from the vicinity of heavily traveled roadways or along corridors with significant trucking traffic or rail activities. For any given location, NATA's exposure estimates of populations near major roads may not be accurate as a result of limitations in the underlying data. NATA's air quality modeling does not have the resolution to model elevated concentrations along individual roadways. However, HAPEM7 exposure modeling accounts for the impact of populations living near roads on average census tract exposures. As such, NATA can be used as a screening tool to help identify populations with higher exposures to air toxics due to a greater density of traffic in the area where they work and live. More refined modeling should be used to characterize air quality in areas with populations experiencing potentially elevated exposures of near-roadway pollutants.

EPA has a web site focused on near-roadway air pollution and health, which can be found at the following link: [HYPERLINK "http://www3.epa.gov/otaq/nearroadway.htm"]. There is also an EPA web site about ongoing near-source air pollution research, found here: [HYPERLINK "http://www2.epa.gov/air-research/near-source-air-pollution-research"].

5: NATA results show significant risks associated with a port in my community. How accurate are the risk estimates associated with ports, and what can be done to reduce these risks?

A: As with other sources, NATA results for ports should be used to identify locations where additional analysis is warranted. There are a number of uncertainties and limitations in NATA's analysis of ports. First, although emissions from various sources contribute to overall pollutant concentrations in ports, only emissions from commercial marine vessels are included within ports in NATA. Also, port emissions for commercial marine vessels come from state and local agency submittals or, in most cases, EPA's estimates. EPA's estimates are based on a 2002 inventory, projected to 2011 using regional adjustment factors to account for growth. Thus, differences in growth among ports in a given region of the country were not accounted for in the EPA estimates. In addition, the boundaries of ports are handled in a more simplified way than they would be in a local assessment, because it is not feasible to do more refined modeling in a national-scale assessment (See Section 2 of the [HYPERLINK "http://www.epa.gov/national-air-toxics-assessment/2011-nata-technical-support-document"]). Finally, emission estimates for toxics from commercial marine vessels are based on extremely limited data.

Despite limitations in assessment of air toxics at ports in this assessment, NATA indicates that people who live and work near ports may experience elevated risks. EPA has taken a number of actions which have reduced risks since 2011. These actions include Tier 2 and Tier 3 standards on oceangoing marine vessels, sulfur control on marine fuel oil, and designation of an emission control area (ECA) off our coasts ([HYPERLINK "http://www3.epa.gov/otaq/oceanvessels.htm" \l "fr"]). Finally, EPA has established a ports initiative to develop and implement sustainable ports strategies ([HYPERLINK "http://www2.epa.gov/ports-initiative"]).

6: What does this NATA say about risk from airports?

A: NATA is a state-of-the-science screening tool that does not incorporate refined information about emission sources, but rather, uses general information about sources to develop estimates of risks using analytical methods. NATA assessments provide screening-level estimates of the risk of cancer and other serious health effects from breathing (inhaling) air toxics in order to inform both national and more localized efforts to identify and prioritize air toxics, emission source types, and locations that are of greatest potential concern in terms of contribution to population risk.

While airports are small contributors to the estimate of national air toxics risks, localized impacts can be significant, especially for people living and working in close proximity to an airport. When interpreting NATA data on airport air toxics impacts it is important to be aware of limitations in the data used. For example, emission inventory estimates at general aviation airports are based on nationwide estimates of the mix of aircraft types using those airports. However, the mix at individual airports can be differ significantly, which could significantly impact results. Also, impacts can be significantly affected by local meteorological and operating conditions, which are not fully addressed in a national-scale analysis. In addition, NATA's air quality modeling does not have the resolution to model concentrations at specific distances from individual airports.

A potential public health concern that should be noted is exposure to emissions from piston-engine aircraft, which still use leaded gasoline. EPA is evaluating the impact of these lead emissions using measurements and much more refined modeling than used in NATA, in order to make a determination about whether these lead emissions cause or contribute to air pollution which may reasonably be anticipated to endanger public health and welfare. Information on EPA's evaluation of lead emissions from piston-engine aircraft can be found at: [HYPERLINK "http://www3.epa.gov/otaq/aviation.htm"].

Message

From: Gray, David [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=881C62B1E54142388C1DE2F8E3799C33-GRAY, DAVID]
Sent: 12/3/2015 11:12:04 PM
To: Stenger, Wren [stenger.wren@epa.gov]
Subject: FW: DuPont Pontchartrain
Attachments: DuPont Pontchartrain final reissuance approval 10-22-15.pdf; DuPont Ponchartrain 2015 reissuance facts sheet 8-5-15.doc

Two attachments

From: Gray, David
Sent: Thursday, December 03, 2015 3:52 PM
To: Stenger, Wren; Anderson, Israel; Blevins, John; Coleman, Sam
Subject: FW: DuPont Pontchartrain

Message

From: Verhalen, Frances [verhalen.frances@epa.gov]
Sent: 12/4/2015 9:07:05 PM
To: Young, Carl [young.carl@epa.gov]
CC: Casso, Ruben [Casso.Ruben@epa.gov]; Hansen, Mark [Hansen.Mark@epa.gov]
Subject: Chloroprene
Attachments: potential sampling sites search 12415.pptx; NATA-Chloroprene risk12215.doc; Chloroprene Risk Backgrounder 9 2015.docx; NATA briefing Chloroprene slides.pptx

Carl, can you post these documents out on the division's SharePoint site for Chloroprene in a folder marked 'Background Information' or some similar title? Thank you.

Frances Verhalen, P.E., Chief
Air Monitoring and Grants Section
US Environmental Protection Agency
1445 Ross Avenue (MC 6MM-AM)
Dallas, TX 75202
214-665-2172
verhalen.frances@epa.gov

Message

From: Verhalen, Frances [verhalen.frances@epa.gov]
Sent: 10/6/2015 9:05:36 PM
To: Stenger, Wren [stenger.wren@epa.gov]
CC: Hansen, Mark [Hansen.Mark@epa.gov]; Robinson, Jeffrey [Robinson.Jeffrey@epa.gov]; Stanton, Marya [Stanton.Marya@epa.gov]; Donaldson, Guy [Donaldson.Guy@epa.gov]
Subject: FW: NATA-Chloroprene risk.doc
Attachments: NATA-Chloroprene risk.doc

Wren, here is the fact sheet on DuPont that I mentioned at the meeting today. Ruben will be acting for me tomorrow should you have questions. I will be at the Houston Lab to meet with Clarence Jackson to learn more about our side-by-side audits of the R6 air quality organization monitors.

Fran

Frances Verhalen, P.E., Chief
Air Quality Analysis Section
US Environmental Protection Agency
1445 Ross Avenue (MC 6PD-Q)
Dallas, TX 75202
214-665-2172
verhalen.frances@epa.gov

From: Casso, Ruben
Sent: Tuesday, October 06, 2015 3:58 PM
To: Verhalen, Frances
Subject: RE: NATA-Chloroprene risk.doc

From: Verhalen, Frances
Sent: Tuesday, October 06, 2015 3:41 PM
To: Casso, Ruben
Subject: NATA-Chloroprene fv.doc

I have two comments that are related. I am not able to understand how you are defining the '900 in a million?'

I re-wrote it, to emphasize points that Wren questioned when I gave her a heads-up.

Message

From: Verhalen, Frances [verhalen.frances@epa.gov]
Sent: 12/11/2015 8:26:49 PM
To: Hansen, Mark [Hansen.Mark@epa.gov]; Thompson, Steve [thompson.steve@epa.gov]; Osbourne, Margaret [osbourne.margaret@epa.gov]; Leathers, James [Leathers.James@epa.gov]
CC: Stenger, Wren [stenger.wren@epa.gov]
Subject: RE: Chloroprene Denka Draft 114 Request Letter Template - Dec 2015_ST fv.doc

Just a heads up that **Dow and DuPont** have completed negotiations for a merger as of today, according to the business news channels.

Frances Verhalen, P.E., Chief
Air Monitoring and Grants Section
US Environmental Protection Agency
1445 Ross Avenue (MC 6MM-AM)
Dallas, TX 75202
214-665-2172
verhalen.frances@epa.gov

From: Hansen, Mark
Sent: Friday, December 11, 2015 2:00 PM
To: Thompson, Steve; Osbourne, Margaret; Leathers, James
Cc: Stenger, Wren; Verhalen, Frances
Subject: Chloroprene Denka Draft 114 Request Letter Template - Dec 2015_ST fv.doc

Nice work ya'll. I offer a couple of comments for your consideration.

Message

From: Verhalen, Frances [verhalen.frances@epa.gov]
Sent: 12/30/2015 3:22:16 PM
To: Casso, Ruben [Casso.Ruben@epa.gov]; Hansen, Mark [Hansen.Mark@epa.gov]
CC: Stenger, Wren [stenger.wren@epa.gov]
Subject: FW: Re: The dated web final 114's
Attachments: FINAL 114 Request Letter - Denka.pdf; FINAL 114 Request Letter - DuPont.pdf

Signed 114 letter.

Frances Verhalen, P.E., Chief
Air Monitoring and Grants Section
US Environmental Protection Agency
1445 Ross Avenue (MC 6MM-AM)
Dallas, TX 75202
214-665-2172
verhalen.frances@epa.gov

From: Leathers, James
Sent: Wednesday, December 30, 2015 8:58 AM
To: Osbourne, Margaret
Cc: Verhalen, Frances
Subject: Re: The dated web final 114's

Hi Margaret,

Attached are the dated letters that went out. I was going to upload and replace in eRouting, but you have it locked. Let me know if you have any questions. Thanks

James Leathers
U.S. EPA, Region 6
Environmental Engineer
(214) 665-6569
leathers.james@epa.gov

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS TX 75202-2733

DEC 18 2015

CERTIFIED MAIL - RETURN RECEIPT REQUESTED: 7009 2820 0001 8284 2054

Jorge Lavastida
Executive Officer and Plant Manager
Denka Performance Elastomers LLC
586 Highway 44
Laplace, LA 70068

RE: Denka Performance Elastomers LLC
Clean Air Act Section 114 Information Request

Dear Mr. Lavastida:

Enclosed is an Information Request (Request) issued to Denka Performance Elastomers LLC under the authority of Section 114 of the Clean Air Act (CAA). The purpose of this Request is to obtain information necessary to determine whether the Denka Performance Elastomers LLC facility is in compliance with the provisions of the CAA.

Please provide the information requested within thirty (30) days of your receipt of this letter to James Leathers, at the above address. If you have any questions, need to request an extension, or wish to schedule a meeting to discuss this Request, please contact Justin Lannen, Attorney, at 214-665-8130.

Sincerely,

John Blevins
Director
Compliance Assurance and
Enforcement Division

Enclosures

CC:
Celena Cage, LDEQ

ENCLOSURE A

INFORMATION REQUEST

The U.S. Environmental Protection Agency (EPA) Region 6 is issuing this request for information to Denka Performance Elastomer LLC (Denka) pursuant to Section 114(a) of the Clean Air Act (CAA) 42 U.S.C. § 7414(a) for the purpose of determining compliance with the CAA. Section 114(a) authorizes the Administrator of EPA to require the submission of information. The Administrator has delegated this authority to the Director of the Enforcement Division, EPA Region 6. Therefore, Denka is required to provide a response to this Request regarding the Denka Performance Elastomer LLC facility located in LaPlace, Louisiana (the "Facility").

The information requested must be submitted whether or not you regard part or all of it a trade secret or confidential business information. You may, if you desire, assert a business confidentiality claim on all or part of the information submitted. Any information subsequently determined to constitute a trade secret will be protected under 18 U.S.C. § 1905. Unless you make a claim at the time that you submit the information, it may be made available to the public by EPA without further notice to you. You should read 40 C.F.R. Part 2 carefully before asserting a business confidentiality claim, since certain categories of information are not properly the subject of a claim. Emission data is exempt from claims of confidentiality under Section 114 of the Act, and the emissions data that you provide may be made available to the public. Information subject to a business confidentiality claim is available to the public only to the extent allowed under 40 C.F.R. Part 2, Subpart B. Failure to assert a business confidentiality claim makes all submitted information available to the public without further notice.

We request that a duly authorized officer or agent of the Facility certify your response by signing the following certification:

> I certify under penalty of law that I have examined and am familiar with the information in the enclosed documents, including all attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are, to the best of my knowledge and belief, true and complete. I am aware that there are significant penalties for knowingly submitting false statements and information, including the possibility of fines or imprisonment pursuant to Section 113(c)(2) of the Act, and 18 U.S.C. §§ 1001 and 1341.

If information responsive to this request was previously provided to EPA subsequent to a recent EPA Air Compliance Inspection or in response to a previous Information Request, EPA does not require that such information be submitted again. In lieu of resubmitting such information, please indicate which information was already provided, the date that the information was submitted to EPA and to whom it was provided.

We may use any information submitted in response to this request in an administrative, civil, or criminal action.

All information responsive to this request should be sent to the following:

James Leathers
Toxics Enforcement Section 6EN-AT
Compliance Assurance and Enforcement Division
U.S. EPA - Region 6
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

Please be advised that some companies may qualify as a "small business" under the Small Business Regulatory Enforcement and Fairness Act (SBREFA). To help small business owners assess their small business status, the U.S. Small Business Administration (SBA) has established a Table of Small Business Size Standards, which can be found at: http://www.sba.gov/sites/default/files/Size_Standards_Table.pdf. If Denka qualifies as a small business, please review the SBREFA Information Sheet designed to provide information on compliance assistance to entities that may qualify as small businesses as well as to inform them of their right to comment to the SBREFA Ombudsman concerning EPA enforcement activities. The SBREFA Information Sheet can be found at: http://nepis.epa.gov/Exe/ZyPDF.cgi/P100BYAV.PDF?Dockey=P100BYAV.PDF. Please be aware that SBREFA does not eliminate Denka's responsibility to respond in a timely fashion to any complaint or information request that EPA may issue or other enforcement action that EPA may take, nor does SBREFA create any new rights or defenses under the law other than the right to comment to the SBREFA Ombudsman. If you are unable to access the links provided or need a hard copy, please contact James Leathers at the phone number listed in the cover letter transmitted with this Request.

This request is not subject to the Paperwork Reduction Act, 44 U.S.C. § 3501 et seq., because it seeks collection of information from specific individuals or entities as part of an administrative action or investigation.

Please be advised that under Section 113(a) of the Act, failure to provide the information required by this letter in a timely manner may result in an order requiring compliance, an order assessing an administrative penalty, or a civil action for appropriate relief. In addition, Section 113(c) of the Act provides criminal penalties for knowingly making any false statements or omission in any response required under the Act. EPA may also seek criminal penalties from any person who knowingly alters, destroys, mutilates, conceals, covers up, falsifies, or makes a false entry in any record, document, or tangible object with the intent to impede, obstruct, or influence the investigation or proper administration of any matter within the jurisdiction of EPA or in relation to or contemplation of any such matter or case. *See* 18 U.S.C. § 1519 (2004). The information provided by you may be used by the United States in administrative, civil, or criminal proceedings.

I. GENERAL INSTRUCTIONS

1. If information or documents not known or not available to you as of the date of submission of a response to this Request should later become known or available to you, you must supplement your response to EPA. Moreover, should you find, at any time after the submission of your response that any portion of the submitted information is false or misrepresents the truth, you must notify EPA of this fact as soon as possible and provide EPA with a corrected response.

2. For each document produced in response to this Request, indicate on the document, or in some other reasonable manner, the number of the Question to which it responds.

3. Please provide a separate response to each question and subpart of a question set forth in this Request and precede each answer with the number of the question to which it corresponds.

4. For each question, identify each person responding to any question contained in this Request on your behalf, as well as each person consulted in the preparation of a response.

5. If available, provide copies of documents in searchable electronic format (*e.g.*, pdf) rather than hard copies. If hard copies of documents are provided, please submit all information for each question in a logically sequenced, bound format.

6. Data should be provided in searchable and editable electronic format (*e.g.*, spreadsheet).

7. When a response is provided in the form of a number, specify the units of measure.

8. Confidential business information (CBI) and non-confidential information should be submitted on separate media devices and identified as such. Please mark each page that is confidential business information as such. To make a CBI claim on hard copy documents, mark each page that is claimed, by cover sheet, stamp, or other suitable form of notice with language such as "trade secret," "proprietary," or "company confidential." Allegedly confidential portions of otherwise non-confidential documents should be clearly identified, and submitted separately to facilitate identification and handling by EPA. The assertion and substantiation requirements for CBI claims are discussed in a subsequent section of this document.

9. Indicate the assigned facility-wide federal air program (*e.g.*, AFS) and state (*e.g.*, Agency Interest, Regulated Entity) identification numbers for the subject facility.

10. For each media device (*e.g.*, compact disc, flash drive) containing electronic documents, provide a table of contents so that each document can be accurately identified in relation to your response to a specific question. In addition, each media device should be labeled (*e.g.*, company name, Disc 1 of 4 for information request response, date of response).

11. For each question, identify each document consulted, examined, or referred to in the preparation of the response or that contains information responsive to the question, and provide a true and correct copy of each such document if not provided in response to another specific question. Indicate on each document produced in response to this Information Request the number of the question to which it corresponds.

12. If Denka has no responsive information or documents for a particular question, submit a statement certifying this, along with a detailed explanation. If a document is responsive to more than one question, this must be so indicated, and only one copy of the document need be provided.

II. DEFINITIONS

The following definitions shall apply to the following words as they appear in Enclosure A:

1. The terms "document" and "documents" shall mean any object that records, stores, or presents information, and includes writings of any kind, formal or informal, draft or final, whether or not wholly or partially in handwriting, including documentation solely in electronic form, including by way of illustration and not by way of imitation, any invoice, manifest, bill of lading, receipt, endorsement, check, bank draft, canceled check, deposit slip, withdrawal slip, order, correspondence, record book, minutes, memorandum of telephone and other conversations, including meetings, agreements and the like, diary, calendar, desk pad, scrapbook, notebook, bulletin, circular, form, pamphlet, statement, journal, postcard, letter, telegram, telex, report, notice, message, email, analysis, comparison, graph, chart, interoffice or intraoffice communications, photostat or other copy of any documents, microfilm or other film record, any photograph, sound recording on any type of device, any punch card, disc or disc pack; any tape or other type of memory generally associated with computers and data processing (together with the programming instructions and other written material necessary to use such punch card, disc, or disc pack, tape or other type of memory and together with printouts of such punch card, disc, or disc pack, tape or other type of memory); and (a) every copy of each document which is not an exact duplicate of a document which is produced, (b) every copy which has any writing, figure or notation, annotation or the like on it, (c) drafts, (d) attachments to or enclosures with any document, and (e) every document referred to in any other document.

2. The term Denka Performance Elastomer LLC (Denka) includes any officer, director, agent, or employee of Denka Performance Elastomer LLC, including any merged, consolidated, or acquired predecessor or parent, subsidiary, division, or affiliate thereof.

3. The terms "person" or "persons" shall have the meaning set forth in Section 302(e) of the Act, 42 U.S.C. § 7602(e), and includes an individual, corporation, partnership, association, State, municipality, political subdivision of a State, and any agency, department, or instrumentality of the United States and any officer, agent or employee thereof.

4. The terms "you" or "yours", as used in each of the questions set forth in the attached Section 114 letter, refers to, and shall mean, the company or corporation with which each addressee of the attached Section 114 letter is affiliated, including its subsidiaries, division, affiliates, predecessors, successors, assigns, and its former and present officers, directors, agents, employees, representatives, attorneys, consultants, accountants and all other persons acting on its behalf.

5. The "Facility" is the synthetic rubber manufacturing plant owned and/or operated by Denka and located in LaPlace, Louisiana.

6. All terms used in the Information Request will have their ordinary meaning unless such terms are defined in the CAA, 42 U.S.C. § 7401 et seq., the implementing regulations, or 40 C.F.R. Part 68.

7. Words in the masculine shall be construed in the feminine, and vice versa, and words in the singular shall be construed in the plural, and vice versa, where appropriate in the context of a particular question or questions.

III. QUESTIONS

Denka Performance Elastomer LLC shall submit the following information about its elastomers facility located in Laplace, Louisiana, within 30 days:

The Facility contains emission units that emit, or have the potential to emit, pollutants that are subject to requirements of the Clean Air Act (CAA). Accordingly, you must provide the following information available to you that relates to the Denka Performance Elastomer Facility:

1. A scaled site plot plan drawing of the Facility and the area immediately surrounding the Facility. The plot plan should include the Chloroprene Unit, Permit No. 3000-V5, the Neoprene Unit, Permit No. 2249-V7, and the HCl Recovery Unit, Permit No. 206-V2, and containing the following:
    a. Property lines on all sides, true north arrow orientation, and showing immediately adjacent streets or property names;

b. Buildings, structures, significant features, and equipment areas on the plant property, with labels or a legend identifying each building, structure, feature, or area; and
c. Labels or a legend identifying the locations and names of all air emission sources that emit **chloroprene** at the Facility, consistent with permit ID Number designations and names found in the Facility's above-referenced Title V air permits.

2. Provide up-to-date detailed process flow diagrams for all production processes and affected auxiliary support operations at the Facility (*e.g.*, wastewater treatment, loading/unloading, etc.), where chloroprene is an emitted pollutant. For each production process flow diagram provided, specify on the diagram if the process operates as a batch process or a continuous process and include on the diagram any combined vent streams from other processes. On the diagrams, using a key for clarity purposes, identify each of the units identified in response to question #1. The diagram must include all emissions units, continuous emissions monitoring systems ("CEMS"), continuous opacity monitoring systems ("COMS"), and all Air Pollution Control Equipment ("APCE"), labeled in a manner consistent with the Facility's LDEQ Air Permits.

3. Provide complete copies of air dispersion modeling studies or reports completed during calendar years 2011 through 2015, for air permitting or other emissions authorization, risk management plans, disaster prevention and release response planning, or episodic release reporting. Include as electronic attachments any emission source modeling spreadsheets developed and employed, plus input and output files in their native format from the modeling software or program used. In addition, please include the meteorological site location and the meteorological data utilized for the air dispersion modeling.

4. Provide all emission calculations of chloroprene that were prepared for LDEQ air permit applications and emission inventories in calendar years 2011 through 2015, including references or bases for emission factors and calculation methodologies used.

5. For any emission point where chloroprene is a pollutant, please list occurrences where the reported emission value to the emission inventory is within 2% of the permitted allowable or the previous year's emissions inventory submittal. For these occurrences, provide an explanation of why the values are so similar (*e.g.*, is the previous year's reported emissions used to estimate the future emissions, does the methodology used to estimate emissions leave no room for inaccuracy, etc.).

6. Provide all usage threshold determinations and air release calculations for chloroprene from Toxic Chemical Release Inventory (TRI) reports for calendar years 2010 through 2014, including references or bases for estimating air releases, including estimation and calculation methodologies used.

7. Provide all measurements, engineering assessments, and calculations performed to determine the most recent Total Resource Effectiveness index value (TRE index value[1]) for any applicable MACT standard. Include any data, assumptions, and procedures used for the engineering assessments.

8. Provide the most recent performance testing records required by the above referenced Title V air permits (Chloroprene Unit, Permit No. 3000-V5, the Neoprene Unit, Permit No. 2249-V7, and the HCl Recovery Unit, Permit No. 206-V2).

9. Provide the most recent submittal of any notification of compliance status used to comply with any applicable MACT standards. If any Emissions Averaging provisions apply as a MACT compliance option, provide the emissions averaging plan with any updates.

[1] As defined in 40 C.F.R. § 63.111: Total resource effectiveness index value or TRE index value means a measure of the supplemental total resource requirement per unit reduction of organic HAP associated with a process vent stream, based on vent stream flow rate, emission rate of organic HAP, net heating value, and corrosion properties (whether or not the vent stream contains halogenated compounds), as quantified by the equations given under § 63.115 of this subpart.

CONFIDENTIAL BUSINESS INFORMATION (CBI) CLAIM ASSERTION & SUBSTANTIATION REQUIREMENTS

Assertion - You may assert a business confidentiality claim covering all or part of the information requested in response to this Request, as provided in 40 C.F.R. § 2.203(b). You may assert a business confidentiality claim covering such information by placing on (or attaching to) the information you desire to assert a confidentiality claim, at the time it is submitted to EPA, a cover sheet, stamped, or typed legend (or other suitable form of notice) employing language such as 'trade secret,' 'proprietary,' or 'company confidential.' Allegedly confidential portions of otherwise non-confidential documents should be clearly identified, and submitted separately to facilitate identification and handling by EPA. If confidential treatment is desired up until a certain date or until the occurrence of a certain event, the notice should state this. Information covered by such a claim will be disclosed by EPA only to the extent, and by means of the procedures, set forth in Section 114(c) of the Clean Air Act (CAA) and 40 C.F.R. Part 2.

EPA will construe the failure to furnish a CBI claim with your response to this Request as a waiver of that claim, and the information may be made available to the public without further notice to you. You should read 40 C.F.R. Part 2 carefully before asserting a confidentiality claim, since certain categories of information are not properly the subject of a claim. Emission data is exempt from claims of confidentiality under Section 114 of the CAA. Any emissions data you provide may be made available to the public. Information subject to a confidentiality claim is available to the public only to the extent allowed under 40 C.F.R. Part 2, Subpart B.

Substantiation - All confidentiality claims are subject to EPA verification in accordance with 40 C.F.R. Part 2, Subpart B. The criteria for determining whether material claimed as confidential is entitled to such treatment are set forth at 40 C.F.R. §§ 2.208 and 2.301, which provide, in part, that you must satisfactorily show that you have taken reasonable measures to protect the confidentiality of the information and you intend to continue to do so; the information is not and has not been reasonably obtainable by legitimate means without your consent; and the disclosure of the information is likely to cause substantial harm to your business's competitive edge.

Pursuant to 40 C.F.R. Part 2, Subpart B, EPA may at any time send you a letter (separate from this Request) asking you to substantiate your CBI claim. If you receive such a letter, you must provide EPA with a response within the time frame set forth in the letter. Failure to submit a response within that time would be regarded as a waiver of your claim, and EPA may release the information. If you receive such a letter, EPA will ask you to specify which portions of the information you consider CBI. You must be specific by page, paragraph, and sentence when identifying the information subject to your claim. Any information not specifically identified as subject to a CBI claim may be disclosed without further notice to you. If you receive such a letter, for each item or class of information that you identify as being subject, you must answer the questions below, giving as much detail as possible, in accordance with 40 C.F.R. § 2.204(e):

1. What specific portions of the information do you allege to be entitled to confidential treatment? For what period of time do you request that the information be maintained as confidential, *e.g.*, until a certain date, until the occurrence of a specified event, or permanently? If the occurrence of an event will eliminate the need for confidentiality, please specify the event.

2. Information submitted to EPA becomes stale over time. Why should the information you claim as confidential be protected for the time period specified in your answer to question #1?

3. What measures have you taken to protect the information claimed as confidential? Have you disclosed the information to anyone other than a governmental body or someone who is bound by agreement not to disclose it? If so, why should the information be considered CBI?

4. Is the information contained in any publicly available material such as the Internet, publicly available databases, promotional publications, annual reports, or articles? Is there any means by which a member of the public could obtain access to the information? Is the information of a kind that you would customarily not release to the public?

5. Has any governmental body made a determination as to the confidentiality of the information? If so, please attach a copy of the determination.

6. For each category of information claimed as confidential, <u>explain with specificity</u> why release of the information is likely to cause substantial harm to your competitive position. Explain the specific nature of those harmful effects, why they should be viewed as substantial, and the causal relationship between disclosure and such harmful effects. How could your competitors make use of this information to your detriment?

7. Do you assert that the information is submitted on a voluntary or a mandatory basis? Please explain the reason for your assertion. If you assert that the information is voluntarily submitted information, explain whether and why disclosure of the information would tend to lessen the availability to EPA of similar information in the future.

8. Any other issue you deem relevant.

Please note emission data is not entitled to confidential treatment under 40 C.F.R. § 2.301(a)(2)(i)(A), (B) and (C). 'Emission data' means, with reference to any source of emission of any substance into the air: (A) Information necessary to determine the identity, amount, frequency, concentration, or other characteristics (to the extent related to air quality) of any emission which has been emitted by the source (or of any pollutant resulting from any emission by source), or any combination of the foregoing; (B) Information necessary to determine the identity, amount, frequency, concentration, or other characteristics (to the extent related to air quality) of the emissions which, under an applicable standard or limitation, the source was authorized to emit (including, to the extent necessary for such purposes, a description of the manner and rate of source operation); and (C) A general description of location and nature of source to extent necessary to identify and distinguish from other sources (including, as necessary for such purposes, a description of the device, installation, or operation constituting the source).

If you receive a substantiation request letter from EPA, you bear the burden of substantiating your CBI claim. Conclusory allegations will be given little or no weight in the determination. If you fail to make a CBI claim with the response to this Request, the information may be released without further notice to you. Failure to give a timely response to a separate substantiation request letter is regarded as a waiver of any CBI claim, and EPA may release the information.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS TX 75202-2733

DEC 18 2015

CERTIFIED MAIL - RETURN RECEIPT REQUESTED: 7009 2820 0001 8284 2085

Lori Sanders
Environmental Attorney
E.I. du Pont de Nemours and Company
1007 N Market St. D-7086
Wilmington, DE 19898

RE: DuPont Pontchartrain Works Facility – LaPlace, LA
Clean Air Act Section 114 Information Request

Dear Ms. Sanders:

Enclosed is an Information Request (Request) issued E.I. du Pont de Nemours and Company under the authority of Section 114 of the Clean Air Act (CAA). The purpose of this Request is to obtain information necessary to determine whether the DuPont Pontchartrain Works Facility – LaPlace, LA is in compliance with the provisions of the CAA.

Please provide the information requested within thirty (30) days of your receipt of this letter to James Leathers, at the above address. If you have any questions, need to request an extension, or wish to schedule a meeting to discuss this Request, please contact Justin Lannen, Attorney, at 214-665-8130.

Sincerely,

John Blevins
Director
Compliance Assurance and
Enforcement Division

Enclosures

CC:
Celena Cage, LDEQ

ENCLOSURE A

INFORMATION REQUEST

The U.S. Environmental Protection Agency (EPA) Region 6 is issuing this request for information to E.I. du Pont de Nemours and Company (DuPont) pursuant to Section 114(a) of the Clean Air Act (CAA) 42 U.S.C. § 7414(a) for the purpose of determining compliance with the CAA. Section 114(a) authorizes the Administrator of EPA to require the submission of information. The Administrator has delegated this authority to the Director of the Enforcement Division, EPA Region 6. Therefore, DuPont is required to provide a response to this Request regarding the DuPont Pontchartrain Works facility located in LaPlace, Louisiana (the "Facility").

The information requested must be submitted whether or not you regard part or all of it a trade secret or confidential business information. You may, if you desire, assert a business confidentiality claim on all or part of the information submitted. Any information subsequently determined to constitute a trade secret will be protected under 18 U.S.C. § 1905. Unless you make a claim at the time that you submit the information, it may be made available to the public by EPA without further notice to you. You should read 40 C.F.R. Part 2 carefully before asserting a business confidentiality claim, since certain categories of information are not properly the subject of a claim. Emission data is exempt from claims of confidentiality under Section 114 of the Act, and the emissions data that you provide may be made available to the public. Information subject to a business confidentiality claim is available to the public only to the extent allowed under 40 C.F.R. Part 2, Subpart B. Failure to assert a business confidentiality claim makes all submitted information available to the public without further notice.

We request that a duly authorized officer or agent of the Facility certify your response by signing the following certification:

> I certify under penalty of law that I have examined and am familiar with the information in the enclosed documents, including all attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are, to the best of my knowledge and belief, true and complete. I am aware that there are significant penalties for knowingly submitting false statements and information, including the possibility of fines or imprisonment pursuant to Section 113(c)(2) of the Act, and 18 U.S.C. §§ 1001 and 1341.

If information responsive to this request was previously provided to EPA subsequent to a recent EPA Air Compliance Inspection or in response to a previous Information Request, EPA does not require that such information be submitted again. In lieu of resubmitting such information, please indicate which information was already provided, the date that the information was submitted to EPA and to whom it was provided.

We may use any information submitted in response to this request in an administrative, civil, or criminal action.

All information responsive to this request should be sent to the following:

James Leathers
Toxics Enforcement Section 6EN-AT
Compliance Assurance and Enforcement Division
U.S. EPA - Region 6
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

Please be advised that some companies may qualify as a "small business" under the Small Business Regulatory Enforcement and Fairness Act (SBREFA). To help small business owners assess their small business status, the U.S. Small Business Administration (SBA) has established a Table of Small Business Size Standards, which can be found at: http://www.sba.gov/sites/default/files/Size_Standards_Table.pdf. If DuPont qualifies as a small business, please review the SBREFA Information Sheet designed to provide information on compliance assistance to entities that may qualify as small businesses as well as to inform them of their right to comment to the SBREFA Ombudsman concerning EPA enforcement activities. The SBREFA Information Sheet can be found at: http://nepis.epa.gov/Exe/ZyPDF.cgi/P100BYAV.PDF?Dockey=P100BYAV.PDF. Please be aware that SBREFA does not eliminate DuPont's responsibility to respond in a timely fashion to any complaint or information request that EPA may issue or other enforcement action that EPA may take, nor does SBREFA create any new rights or defenses under the law other than the right to comment to the SBREFA Ombudsman. If you are unable to access the links provided or need a hard copy, please contact James Leathers at the phone number listed in the cover letter transmitted with this Request.

This request is not subject to the Paperwork Reduction Act, 44 U.S. C. § 3501 et seq., because it seeks collection of information from specific individuals or entities as part of an administrative action or investigation.

Please be advised that under Section 113(a) of the Act, failure to provide the information required by this letter in a timely manner may result in an order requiring compliance, an order assessing an administrative penalty, or a civil action for appropriate relief. In addition, Section 113(c) of the Act provides criminal penalties for knowingly making any false statements or omission in any response required under the Act. EPA may also seek criminal penalties from any person who knowingly alters, destroys, mutilates, conceals, covers up, falsifies, or makes a false entry in any record, document, or tangible object with the intent to impede, obstruct, or influence the investigation or proper administration of any matter within the jurisdiction of EPA or in relation to or contemplation of any such matter or case. *See* 18 U.S.C. § 1519 (2004). The information provided by you may be used by the United States in administrative, civil, or criminal proceedings.

I. GENERAL INSTRUCTIONS

1. If information or documents not known or not available to you as of the date of submission of a response to this Request should later become known or available to you, you must supplement your response to EPA. Moreover, should you find, at any time after the submission of your response that any portion of the submitted information is false or misrepresents the truth, you must notify EPA of this fact as soon as possible and provide EPA with a corrected response.

2. For each document produced in response to this Request, indicate on the document, or in some other reasonable manner, the number of the Question to which it responds.

3. Please provide a separate response to each question and subpart of a question set forth in this Request and precede each answer with the number of the question to which it corresponds.

4. For each question, identify each person responding to any question contained in this Request on your behalf, as well as each person consulted in the preparation of a response.

5. If available, provide copies of documents in searchable electronic format (*e.g.*, pdf) rather than hard copies. If hard copies of documents are provided, please submit all information for each question in a logically sequenced, bound format.

6. Data should be provided in searchable and editable electronic format (*e.g.*, spreadsheet).

7. When a response is provided in the form of a number, specify the units of measure.

8. Confidential business information (CBI) and non-confidential information should be submitted on separate media devices and identified as such. Please mark each page that is confidential business information as such. To make a CBI claim on hard copy documents, mark each page that is claimed, by cover sheet, stamp, or other suitable form of notice with language such as "trade secret," "proprietary," or "company confidential." Allegedly confidential portions of otherwise non-confidential documents should be clearly identified, and submitted separately to facilitate identification and handling by EPA. The assertion and substantiation requirements for CBI claims are discussed in a subsequent section of this document.

9. Indicate the assigned facility-wide federal air program (*e.g.*, AFS) and state (*e.g.*, Agency Interest, Regulated Entity) identification numbers for the subject facility.

10. For each media device (*e.g.*, compact disc, flash drive) containing electronic documents, provide a table of contents so that each document can be accurately identified in relation to your response to a specific question. In addition, each media device should be labeled (*e.g.*, company name, Disc 1 of 4 for information request response, date of response).

11. For each question, identify each document consulted, examined, or referred to in the preparation of the response or that contains information responsive to the question, and provide a true and correct copy of each such document if not provided in response to another specific question. Indicate on each document produced in response to this Information Request the number of the question to which it corresponds.

12. If DuPont has no responsive information or documents for a particular question, submit a statement certifying this, along with a detailed explanation. If a document is responsive to more than one question, this must be so indicated, and only one copy of the document need be provided.

II. DEFINITIONS

The following definitions shall apply to the following words as they appear in Enclosure A:

1. The terms "document" and "documents" shall mean any object that records, stores, or presents information, and includes writings of any kind, formal or informal, draft or final, whether or not wholly or partially in handwriting, including documentation solely in electronic form, including by way of illustration and not by way of imitation, any invoice, manifest, bill of lading, receipt, endorsement, check, bank draft, canceled check, deposit slip, withdrawal slip, order, correspondence, record book, minutes, memorandum of telephone and other conversations, including meetings, agreements and the like, diary, calendar, desk pad, scrapbook, notebook, bulletin, circular, form, pamphlet, statement, journal, postcard, letter, telegram, telex, report, notice, message, email, analysis, comparison, graph, chart, interoffice or intraoffice communications, photostat or other copy of any documents, microfilm or other film record, any photograph, sound recording on any type of device, any punch card, disc or disc pack; any tape or other type of memory generally associated with computers and data processing (together with the programming instructions and other written material necessary to use such punch card, disc, or disc pack, tape or other type of memory and together with printouts of such punch card, disc, or disc pack, tape or other type of memory); and (a) every copy of each document which is not an exact duplicate of a document which is produced, (b) every copy which has any writing, figure or notation, annotation or the like on it, (c) drafts, (d) attachments to or enclosures with any document, and (e) every document referred to in any other document.

2. The term E.I. du Pont de Nemours and Company (DuPont) includes any officer, director, agent, or employee of E.I. du Pont de Nemours and Company, including any merged, consolidated, or acquired predecessor or parent, subsidiary, division, or affiliate thereof.

3. The terms "person" or "persons" shall have the meaning set forth in Section 302(e) of the Act, 42 U.S.C. § 7602(e), and includes an individual, corporation, partnership, association, State, municipality, political subdivision of a State, and any agency, department, or instrumentality of the United States and any officer, agent or employee thereof.

4. The terms "you" or "yours", as used in each of the questions set forth in the attached Section 114 letter, refers to, and shall mean, the company or corporation with which each addressee of the attached Section 114 letter is affiliated, including its subsidiaries, division, affiliates, predecessors, successors, assigns, and its former and present officers, directors, agents, employees, representatives, attorneys, consultants, accountants and all other persons acting on its behalf.

5. The "Facility" is the synthetic rubber manufacturing plant formerly owned and/or operated by DuPont and located in LaPlace, Louisiana.

6. All terms used in the Information Request will have their ordinary meaning unless such terms are defined in the CAA, 42 U.S.C. § 7401 et seq., the implementing regulations, or 40 C.F.R. Part 68.

7. Words in the masculine shall be construed in the feminine, and vice versa, and words in the singular shall be construed in the plural, and vice versa, where appropriate in the context of a particular question or questions.

III. QUESTIONS

E.I. du Pont de Nemours and Company shall submit the following information about its elastomers facility, Pontchartrain Works, located in Laplace, Louisiana, within 30 days:

The Facility contains emission units that emit or have the potential to emit pollutants that are subject to requirements of the Clean Air Act (CAA). Accordingly, you must provide the following information available to you that relates to the Pontchartrain Works elastomers facility:

1. A scaled site plot plan drawing of the Facility and the area immediately surrounding the Facility. The plot plan should include the Chloroprene Unit, Permit No. 3000-V5, the Neoprene Unit, Permit No. 2249-V7, and the HCl Recovery Unit, Permit No. 206-V2, and containing the following:
   a. Property lines on all sides, true north arrow orientation, and showing immediately adjacent streets or property names;

b. Buildings, structures, significant features, and equipment areas on the plant property, with labels or a legend identifying each building, structure, feature, or area; and
c. Labels or a legend identifying the locations and names of all air emission sources that emit **chloroprene** at the Facility, consistent with permit ID Number designations and names found in the Facility's above-referenced Title V air permits.

2. Provide up-to-date detailed process flow diagrams for all production processes and affected auxiliary support operations at the Facility (*e.g.*, wastewater treatment, loading/unloading, etc.), where chloroprene is an emitted pollutant. For each production process flow diagram provided, specify on the diagram if the process operates as a batch process or a continuous process and include on the diagram any combined vent streams from other processes. On the diagrams, using a key for clarity purposes, identify each of the units identified in response to question #1. The diagram must include all emissions units, continuous emissions monitoring systems ("CEMS"), continuous opacity monitoring systems ("COMS"), and all Air Pollution Control Equipment ("APCE"), labeled in a manner consistent with the Facility's LDEQ Air Permits.

3. Provide complete copies of air dispersion modeling studies or reports completed during calendar years 2011 through 2015, for air permitting or other emissions authorization, risk management plans, disaster prevention and release response planning, or episodic release reporting. Include as electronic attachments any emission source modeling spreadsheets developed and employed, plus input and output files in their native format from the modeling software or program used. In addition, please include the meteorological site location and the meteorological data utilized for the air dispersion modeling.

4. Provide all emission calculations of chloroprene that were prepared for LDEQ air permit applications and emission inventories in calendar years 2011 through 2015, including references or bases for emission factors and calculation methodologies used.

5. For any emission point where chloroprene is a pollutant, please list occurrences where the reported emission value to the emission inventory is within 2% of the permitted allowable or the previous year's emissions inventory submittal. For these occurrences, provide an explanation of why the values are so similar (*e.g.*, is the previous years reported emissions used to estimate the future emission, does the methodology used to estimate emissions leave no room for inaccuracy, etc.).

6. Provide all usage threshold determinations and air release calculations for chloroprene from Toxic Chemical Release Inventory (TRI) reports for calendar years 2010 through 2014, including references or bases for estimating air releases, including estimation and calculation methodologies used.

7. Provide all measurements, engineering assessments, and calculations performed to determine the most recent Total Resource Effectiveness index value (TRE index value[1]) for any applicable MACT standard. Include any data, assumptions, and procedures used for the engineering assessments.

8. Provide the most recent performance testing records required by the above referenced Title V air permits (Chloroprene Unit, Permit No. 3000-V5, the Neoprene Unit, Permit No. 2249-V7, and the HCl Recovery Unit, Permit No. 206-V2).

9. Provide the most recent submittal of any notification of compliance status used to comply with any applicable MACT standards. If any Emissions Averaging provisions apply as a MACT compliance option, provide the emissions averaging plan with any updates.

[1] As defined in §63.111: Total resource effectiveness index value or TRE index value means a measure of the supplemental total resource requirement per unit reduction of organic HAP associated with a process vent stream, based on vent stream flow rate, emission rate of organic HAP, net heating value, and corrosion properties (whether or not the vent stream contains halogenated compounds), as quantified by the equations given under §63.115 of this subpart.

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EPA will construe the failure to furnish a CBI claim with your response to this Request as a waiver of that claim, and the information may be made available to the public without further notice to you. You should read 40 C.F.R. Part 2 carefully before asserting a confidentiality claim, since certain categories of information are not properly the subject of a claim. Emission data is exempt from claims of confidentiality under Section 114 of the CAA. Any emissions data you provide may be made available to the public. Information subject to a confidentiality claim is available to the public only to the extent allowed under 40 C.F.R. Part 2, Subpart B.

Substantiation - All confidentiality claims are subject to EPA verification in accordance with 40 C.F.R. Part 2, Subpart B. The criteria for determining whether material claimed as confidential is entitled to such treatment are set forth at 40 C.F.R. §§ 2.208 and 2.301, which provide, in part, that you must satisfactorily show that you have taken reasonable measures to protect the confidentiality of the information and you intend to continue to do so; the information is not and has not been reasonably obtainable by legitimate means without your consent; and the disclosure of the information is likely to cause substantial harm to your business's competitive edge.

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1. What specific portions of the information do you allege to be entitled to confidential treatment? For what period of time do you request that the information be maintained as confidential, *e.g.*, until a certain date, until the occurrence of a specified event, or permanently? If the occurrence of an event will eliminate the need for confidentiality, please specify the event.

2. Information submitted to EPA becomes stale over time. Why should the information you claim as confidential be protected for the time period specified in your answer to question #1?

3. What measures have you taken to protect the information claimed as confidential? Have you disclosed the information to anyone other than a governmental body or someone who is bound by agreement not to disclose it? If so, why should the information be considered CBI?

4. Is the information contained in any publicly available material such as the Internet, publicly available databases, promotional publications, annual reports, or articles? Is there any means by which a member of the public could obtain access to the information? Is the information of a kind that you would customarily not release to the public?

5. Has any governmental body made a determination as to the confidentiality of the information? If so, please attach a copy of the determination.

6. For each category of information claimed as confidential, explain with specificity why release of the information is likely to cause substantial harm to your competitive position. Explain the specific nature of those harmful effects, why they should be viewed as substantial, and the causal relationship between disclosure and such harmful effects. How could your competitors make use of this information to your detriment?

7. Do you assert that the information is submitted on a voluntary or a mandatory basis? Please explain the reason for your assertion. If you assert that the information is voluntarily submitted information, explain whether and why disclosure of the information would tend to lessen the availability to EPA of similar information in the future.

8. Any other issue you deem relevant.

Please note emission data is not entitled to confidential treatment under 40 C.F.R. § 2.301(a)(2)(i)(A), (B) and (C). 'Emission data' means, with reference to any source of emission of any substance into the air: (A) Information necessary to determine the identity, amount, frequency, concentration, or other characteristics (to the extent related to air quality) of any emission which has been emitted by the source (or of any pollutant resulting from any emission by source), or any combination of the foregoing; (B) Information necessary to determine the identity, amount, frequency, concentration, or other characteristics (to the extent related to air quality) of the emissions which, under an applicable standard or limitation, the source was authorized to emit (including, to the extent necessary for such purposes, a description of the manner and rate of source operation); and (C) A general description of location and nature of source to extent necessary to identify and distinguish from other sources (including, as necessary for such purposes, a description of the device, installation, or operation constituting the source).

If you receive a substantiation request letter from EPA, you bear the burden of substantiating your CBI claim. Conclusory allegations will be given little or no weight in the determination. If you fail to make a CBI claim with the response to this Request, the information may be released without further notice to you. Failure to give a timely response to a separate substantiation request letter is regarded as a waiver of any CBI claim, and EPA may release the information.

Message

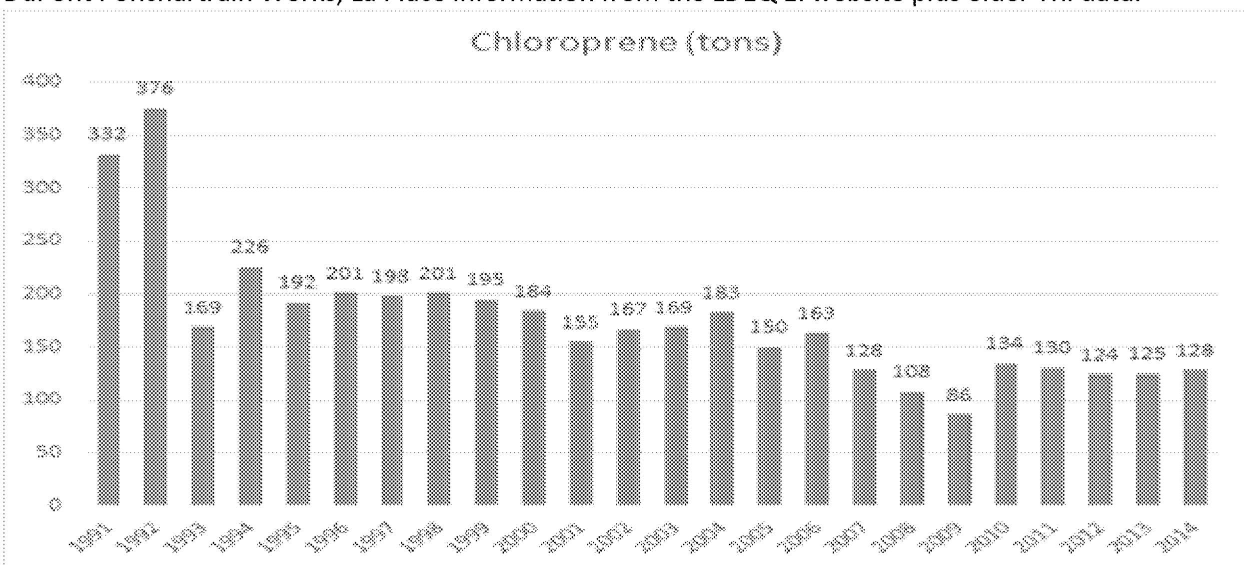
From: Verhalen, Frances [verhalen.frances@epa.gov]
Sent: 12/18/2015 9:33:29 PM
To: Stenger, Wren [stenger.wren@epa.gov]; Hansen, Mark [Hansen.Mark@epa.gov]
Subject: Additional Information Relating to SJB Action Plan
Attachments: 2011 final NATA - highlights.pptx

1. 2011 NATA weblink, Dec. 17, 2015: http://www.epa.gov/national-air-toxics-assessment

2. LDEQ has ordered a chloroprene standard for use in air monitoring tasks (using their mobile air monitoring lab-MAML)

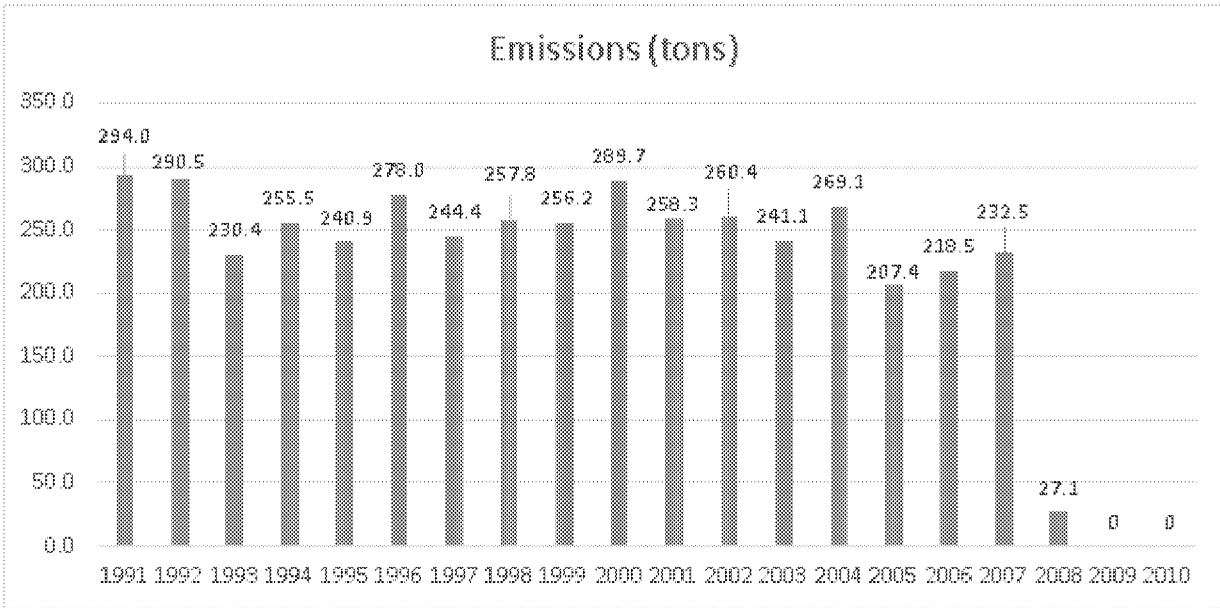
3. According to the released NATA chart, 7 out of the top 10 census tracts with a potential cancer risk over 100 incidences in 1,000,000 are in St. John the Baptist Parish. There are five (5) more census tracts in St. John the Baptist and St. Charles parishes (adjacent to St. John the Baptist) in LA over 100 incidences in 1,000,000 potential cancer risk, for a total of 12 census tracts in LA at the elevated potential risk.

4. DuPont Ponchartrain Works, La Place information from the LDEQ EI website plus older TRI data.



Not included above, TRI reports 1988, 1989 and 1990 chloroprene emissions from this facility were: 479 tpy, 486 tpy, and 461 tpy, respectively

5. DuPont Rubber Town Works, Louisville, KY data from TRI



TRI reports 1988, 1989 and 1990 chloroprene emissions from this facility were: 283 tpy, 257 tpy, and 232 tpy, respectively.

6. Ruben consolidated the NATA maps showing census tracts in the Region over 10^{-4} in the attached powerpoint. We also confirmed that the proposed monitoring locations were in the census tracts where the two highest potential cancer risks occur.

7. The Regional Screening Level table, which we (EPA) often use for a quick reference to evaluate toxicity associated with a chemical, contains both the Integrated Risk Information System(IRIS) data and the Hazardous Index (HI).
   a. IRIS information is listed in the table. However, you cannot tell from the table based on the IRIS information if a chemical has acute or chronic toxicity. This specific information is contained in the summary information within the IRIS database online.
   b. If a chemical has an HI greater than 1, then it has acute toxicity.
   c. For chloroprene, per Jon Rauscher, the reference concentration is based on a daily exposure of 8 hrs per day for five (5) days per week for 70 years. The inhalation risk factor is based on based on a daily exposure of 24 hours per day for seven (7) days per week for 70 years. Both of these concentrations assume that a person weighing 70 kgs will breather 20 cubic meters of air per day. Jon also said that the short-term exposure to a carcinogen can be prorated (linearly) if time of exposure is different (i.e., if the person only lived in the area for seven years instead of 70 years, then the exposure would 10% of the total).

Frances Verhalen, P.E., Chief
Air Monitoring and Grants Section
US Environmental Protection Agency
1445 Ross Avenue (MC 6MM-AM)
Dallas, TX 75202
214-665-2172
verhalen.frances@epa.gov

Message

From: Casso, Ruben [Casso.Ruben@epa.gov]
Sent: 12/17/2015 3:57:25 PM
To: Hansen, Mark [Hansen.Mark@epa.gov]; Stenger, Wren [stenger.wren@epa.gov]
CC: Verhalen, Frances [verhalen.frances@epa.gov]
Subject: Contact list for Dupont/Denka
Attachments: EPA Region 6 contacts.docx

EPA Region 6
Contacts for DuPont and Denka Pontchartrain Works in La Place, St. John the Baptist, Louisiana
December 15, 2015

Name	Title	Email	Phone number	
Ron Curry	Regional Administrator	Curry.Ron@epa.gov	214.665.2200	
Sam Coleman	Deputy Regional Administrator	[HYPERLINK "mailto:Coleman.sam@epa.gov"]	214.665.3110	
John Blevins	Enforcement Director	[HYPERLINK "mailto:Blevins.John@epa.gov"]	214.665.2266	
Steve Thompson	Air Enforcement	thompson.steve@epa.gov	214.665.2769	
Wren Stenger	Multimedia Director	[HYPERLINK "mailto:Stenger.wren@epa.gov"]	214.665.6583	Air, RCRA, Pesticides,Tanks, Children's Health, Lead-Based Paint, Pollution Prevention,
Mark Hansen	Air, Associate Director	[HYPERLINK "mailto:Hansen.mark@epa.gov"]	214.665.7548	Air, Monitoring and Planning
Fran Verhalen	Air Monitoring, Chief	[HYPERLINK "mailto:Verhalen.francis@epa.gov"]	214.665.2172	
Ruben Casso	Air Toxics Coordinator	[HYPERLINK "mailto:Casso.ruben@epa.gov"]	214.665.6763	
Arturo Blanco	EJ Director	[HYPERLINK "mailto:Blanco.arturo@epa.gov"]	214.665.3182	
Charlotte Runnels	LA EJ Community Liaison		214.665.6442	
David Gray	Public Affairs Director	[HYPERLINK "mailto:Gray.david@epa.gov"]	214.665. 8120	

Message

From:	Verhalen, Frances [verhalen.frances@epa.gov]
Sent:	11/19/2015 1:45:40 PM
To:	Stenger, Wren [stenger.wren@epa.gov]; Hansen, Mark [Hansen.Mark@epa.gov]
CC:	Casso, Ruben [Casso.Ruben@epa.gov]; Robinson, Jeffrey [Robinson.Jeffrey@epa.gov]; Donaldson, Guy [Donaldson.Guy@epa.gov]
Subject:	FW: left you a voice mail
Attachments:	NATA-Chloroprene risk111715.doc

Wren,
Yes. HQ and Ruben have been in discussion with Bob Bailey, LDEQ. Please see attached briefing sheet. Ruben is awaiting a call back from HQ to find out how their discussion with DuPont went yesterday.

Frances Verhalen, P.E., Chief
Air Monitoring and Grants Section
US Environmental Protection Agency
1445 Ross Avenue (MC 6MM-AM)
Dallas, TX 75202
214-665-2172
verhalen.frances@epa.gov

From: Robinson, Jeffrey
Sent: Thursday, November 19, 2015 7:39 AM
To: Verhalen, Frances; Casso, Ruben
Subject: FW: left you a voice mail

Please see Wren and Steve Page's messages below and respond back to Wren/Mark. Thanks.

From: Stenger, Wren
Sent: Thursday, November 19, 2015 7:37 AM
To: Hansen, Mark; Donaldson, Guy; Robinson, Jeffrey
Subject: FW: left you a voice mail

Jeff, dies the state know about the upcoming announcement? Please give them a call.

Sent from my Windows Phone

From: Page, Steve
Sent: 11/18/2015 9:55 AM
To: Stenger, Wren
Cc: Sasser, Erika
Subject: left you a voice mail

Hi Wren,

Please call Erika Sasser regarding the LA Chloroprene issue. We need to make sure that you all have discussed this with the appropriate State officials so they are not surprised by the upcoming NATA announcement. Thanks.

Message

From: Hansen, Mark [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=41BC0E02FC644198B8D3628E36717C18-HANSEN, MARK]
Sent: 12/28/2015 7:08:09 PM
To: Verhalen, Frances [verhalen.frances@epa.gov]; Casso, Ruben [Casso.Ruben@epa.gov]
Subject: FW: Could you share the DuPont/Denka info request?
Attachments: FINAL 114 Request Letter - Denka.doc; FINAL 114 Request Letter - DuPont.doc

FYI

-----Original Message-----
From: Osbourne, Margaret
Sent: Monday, December 28, 2015 11:34 AM
To: Hansen, Mark; Thompson, Steve
Subject: RE: Could you share the DuPont/Denka info request?

No problem! See attached.

Margaret Osbourne
Chief, Air Toxics Section
Compliance Assurance & Enforcement Division EPA Region 6
1445 Ross Avenue (6EN-AT)
Dallas, TX 75202
214-665-6508

-----Original Message-----
From: Hansen, Mark
Sent: Monday, December 28, 2015 11:22 AM
To: Thompson, Steve
Cc: Osbourne, Margaret
Subject: Could you share the DuPont/Denka info request?

Sent from my iPhone

Message

From: Hansen, Mark [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=41BC0E02FC644198B8D3628E36717C18-HANSEN, MARK]
Sent: 12/7/2015 7:00:33 PM
To: Verhalen, Frances [verhalen.frances@epa.gov]; Robinson, Jeffrey [Robinson.Jeffrey@epa.gov]
Subject: FW: DUPONT Information
Attachments: Dupont Pontchartrain Works ejscreen .5 mile Radius.pdf; Dupont Pontchartrain Works ejscreen - 1 mile Radius.pdf; Dupont Pontchartrain Works ejscreen - 3 mile Radius.pdf; Dupont - Schools, Community Org, Faith Based Org - 2015.docx

FYI

From: Anderson, Israel
Sent: Monday, December 07, 2015 11:22 AM
To: Stenger, Wren; Blanco, Arturo; Blevins, John; Gilrein, Stephen; Yurk, Jeffrey; Smith, Rhonda; Edlund, Carl; Phillips, Pam; Seager, Cheryl; Hansen, Mark; Pettigrew, George; Honker, William; Garcia, David; Casso, Ruben; Harrison, Ben; Coleman, Sam; Johnson, Lydia; Runnels, Charlotte; Ruhl, Christopher; Lyke, Jennifer
Cc: Verhalen, Frances; Ruiz, Thomas; Crossland, Ronnie; McGee, Tomika; Young, Carl
Subject: FW: DUPONT Information

Resending EJSCREEN Reports for the .5 mile, 1 mile, and 3 mile radius from the DuPont Pontchartrain Works facility as well as some information about the two closest schools to the site and a list of community/environmental justice organizations who would need to be contacted when it is deemed appropriate and some info on nearby churches.

From: Runnels, Charlotte
Sent: Monday, December 07, 2015 11:00 AM
To: Anderson, Israel
Subject: DUPONT Information

Message

From: Thompson, Steve [thompson.steve@epa.gov]
Sent: 12/15/2015 3:07:53 PM
To: Leathers, James [Leathers.James@epa.gov]; Osbourne, Margaret [osbourne.margaret@epa.gov]
Subject: FW: Denka Draft 114 Request Letter Template - Dec 2015_ST fv.doc
Attachments: Denka Draft 114 Request Letter Template - Dec 2015_ST fv.doc

Some comments from Fran. I think we only received comments from Fran, Mark Hansen and OAQPS so if we can work to address these, we should be good to go.

Thanks

From: Verhalen, Frances
Sent: Friday, December 11, 2015 1:37 PM
To: Thompson, Steve
Cc: Hansen, Mark; Stenger, Wren
Subject: Denka Draft 114 Request Letter Template - Dec 2015_ST fv.doc

Steve, One substantive change/comment on page 9 that asks for any/all performance testing and not limited to the three areas. Don't know if we can ask for more stack testing data than is in the permit or if these data exist but would like all of it.

Also a couple of formatting changes.

Thanks, Fran

Message

From: Thompson, Steve [thompson.steve@epa.gov]
Sent: 12/10/2015 4:36:08 PM
To: Leathers, James [Leathers.James@epa.gov]
CC: Osbourne, Margaret [osbourne.margaret@epa.gov]
Subject: Dupont Emissions/permit data
Attachments: FW: DuPont Laplace permit data; DuPont Laplace permit data; Chloroprene

This may be helpful

Message

From: Yurk, Jeffrey [yurk.jeffrey@epa.gov]
Sent: 12/8/2015 7:56:57 PM
To: Thompson, Steve [thompson.steve@epa.gov]
Subject: DuPont Laplace permit data
Attachments: DuPont Laplace permit assessment.xlsx

Tab one has 2014 emissions inventory data for sources of chloroprene in the emissions inventory that had permit limits that existed in 2012.

Tab Two has 2014 emissions inventory data for sources of all contaminants in the emissions inventory that had permit limits that existed in 2012.

Tab Three is the 2014 emissions inventory for DuPont Laplace- I've filtered the chloroprene so you can see the third and fourth largest sources of chloroprene do not have permit limits. Only 29 of the 112 sources of chloroprene listed in the emissions inventory appear to have permit limits.

MASTER_AI_ID	AI	FACILITY_NAME	AI_NAME	ADDRESS1	CITY	ZIPCODE
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
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38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068

PRIMARY_NAICS_CODE	PRIMARY_SIC_CODE	SOURCE_TYPE	ACT_TRACKING_NO	PERMIT
325212	2869	Other	PER20080009	2249-V7
325212	2869	Other	PER20080009	2249-V7
325212	2869	Other	PER20080009	2249-V7
325212	2869	Above ground storage vessel	PER20080009	2249-V7
325212	2869	Other	PER20080009	2249-V7
325212	2869	Other	PER20080009	2249-V7
325212	2869	Wastewater Treatment System	PER20080009	2249-V7
325212	2869	Fugitive Emissions	PER20080009	2249-V7
325212	2869	Other	PER20080009	2249-V7
325212	2869	Above ground storage vessel	PER20080009	2249-V7
325212	2869	Scrubber	PER20100004	206-V2
325212	2869	Condenser	PER20100004	206-V2
325212	2869	Other	PER20080009	2249-V7
325212	2869	Above ground storage vessel	PER20080009	2249-V7
325212	2869	Wastewater Treatment System	PER20080009	2249-V7
325212	2869	Other	PER20100004	206-V2
325212	2869	Fugitive Emissions	PER20100004	206-V2
325212	2869	Other	PER20100004	206-V2
325212	2869	Above ground storage vessel	PER20080009	2249-V7
325212	2869	Above ground storage vessel	PER20080009	2249-V7
325212	2869	Above ground storage vessel	PER20080009	2249-V7
325212	2869	Above ground storage vessel	PER20080009	2249-V7

PERMIT_NUMBER	PERMIT_ISSUED	PERMIT_END_DATE	EIQ#	SUBJ_ITEM_ID	SUBJ_ITEM_TYPE_DESC
2249-V6	6/16/2009	6/16/2014	1700-3	RLP00000000015	Stack/Vent
2249-V6	6/16/2009	6/16/2014	1700-66	EQT00000000185	Other
2249-V6	6/16/2009	6/16/2014	1700-2	RLP00000000014	Stack/Vent
2249-V6	6/16/2009	6/16/2014	1700-21A	EQT00000000141	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	1700-13A	EQT00000000136	Other
2249-V6	6/16/2009	6/16/2014	1700-13	EQT00000000135	Other
2249-V6	6/16/2009	6/16/2014	Apr-95	EQT00000000203	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	Jan-93	FUG00000000004	Non equipment leaks
2249-V6	6/16/2009	6/16/2014	1700-56	RLP00000000016	Stack/Vent
2249-V6	6/16/2009	6/16/2014	1700-1	EQT00000000134	Above ground storage vessel
206-V2	3/14/2011	3/2/2015	7000-17	EQT00000000087	Scrubber
206-V2	3/14/2011	3/2/2015	Feb-74	EQT00000000090	Condenser
2249-V6	6/16/2009	6/16/2014	1700-5A	EQT00000000167	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	1700-51	EQT00000000162	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	May-95	EQT00000000204	Above ground storage vessel
206-V2	3/14/2011	3/2/2015	7000-15	EQT00000000086	Furnace
206-V2	3/14/2011	3/2/2015	Mar-96	FUG00000000003	Equipment leaks
206-V2	3/14/2011	3/2/2015	Jan-96	EQT00000000097	Miscellaneous
2249-V6	6/16/2009	6/16/2014	1700-53	EQT00000000163	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	1700-54	EQT00000000164	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	1700-55	EQT00000000165	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	1700-67	EQT00000000186	Above ground storage vessel

SUBJECT_ITEM_DESC	PARAMETER_DESC	TPY_PERMITTED_EMISSIONS	Emissions (tons)
Poly Kettles Vent Condenser	Chloroprene	34.39	22.8675
Poly Building Wall Fans	Chloroprene	15.83	15.8315
Strippers Condenser Vent	Chloroprene	17.3	9.17
2MM Pound CD Storage Tank	Chloroprene	5.77	4.686
Poly Kettles Manholes / Strainers (3, 4, & 5) Common Vent	Chloroprene	7.17	4.0145
Poly Kettles Manholes / Strainers (1 & 2) Common Vent	Chloroprene	5.82	3.259
Surge Tank (Waste Water Tank)	Chloroprene	1.99	2.1695
Fugitive Emissions - Neoprene Unit	Chloroprene	1.6	2.091
No. 6, 7, 8, 10, 13, & 14 Unstripped Storage Tanks Depressure Vent (Surge Control Vessels)	Chloroprene	3	1.907
No. 7, 8, 10, 13, 14 Emulsion Storage Tks Manhole & Exhaust Blower	Chloroprene	2.42	1.357
HCl Feed Tanks' Scrubber	Chloroprene	1.09	1.111
Waste Storage Tanks' Condenser	Chloroprene	1.14	0.873
No. 6 Emulsion Storage Tank Manhole	Chloroprene	1.49	0.836
Inhibitor Mix Tank (Surge Control Vessel)	Chloroprene	1.17	0.706
Aeration Tank (Waste Water Tank)	Chloroprene	0.02	0.0255
HCl Recovery Unit	Chloroprene	0.04	0.0215
Fugitive Emissions	Chloroprene	0.04	0.012
Waste Loading Vent	Chloroprene	0.01	0.0055
Stripped Emulsion Tank No. 1	Chloroprene	0.01	0.0035
Stripped Emulsion Tank No. 2	Chloroprene	0.01	0.0035
Stripped Emulsion Tank No. 3	Chloroprene	0.01	0.0035
Stripped Emulsion Tank No. 4	Chloroprene	0.01	0.0035

Emissions minus Permit (tons)
-11.5225
0.0015
-8.13
-1.084
-3.1555
-2.561
0.1795
0.491
-1.093
-1.063
0.021
-0.267
-0.654
-0.464
0.0055
-0.0185
-0.028
-0.0045
-0.0065
-0.0065
-0.0065
-0.0065

38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplac e	70068
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325212	2869	Above ground storage vessel	PER20080009	2249-V7
325212	2869	Above ground storage vessel	PER20080009	2249-V7
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325212	2869	Above ground storage vessel	PER20080009	2249-V7
325212	2869	Above ground storage vessel	PER20080009	2249-V7
325212	2869	Above ground storage vessel	PER20080009	2249-V7
325212	2869	Wastewater Treatment System	PER20080009	2249-V7

2249-V6	6/16/2009	6/16/2014	1700-68	EQT00000000187	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	1700-69	EQT00000000188	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	1700-70	EQT00000000189	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	1700-71	EQT00000000190	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	1700-72	EQT00000000191	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	1700-73	EQT00000000192	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	Mar-95	EQT00000000202	Above ground storage vessel

Stripped Emulsion Tank No. 5	Chloroprene	0.01	0.0035
Stripped Emulsion Tank No. 9	Chloroprene	0.01	0.0035
Stripped Emulsion Tank No. 11	Chloroprene	0.01	0.0005
Stripped Emulsion Tank No. 12	Chloroprene	0.01	0.0005
Stripped Emulsion Tank No. 15	Chloroprene	0.01	0.0005
Stripped Emulsion Tank No. 16	Chloroprene	0.01	0.0005
Diversion Tank (Waste Water Tank)	Chloroprene	0.19	0.00011

-0.0065
-0.0065
-0.0095
-0.0095
-0.0095
-0.0095
-0.18989

MASTER_AI_ID	AI	FACILITY_NAME	AI_NAME	ADDRESS1	CITY	ZIPCODE
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38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068

PRIMARY_NAICS_CODE	PRIMARY_SIC_CODE	SOURCE_TYPE	ACT_TRACKING_NO	PERMIT
325212	2869	Fugitive Emissions	PER20100004	206-V2
325212	2869	Fugitive Emissions	PER20100004	206-V2
325212	2869	Fugitive Emissions	PER20080009	2249-V7
325212	2869	Wastewater Treatment System	PER20080009	2249-V7
325212	2869	Wastewater Treatment System	PER20080009	2249-V7
325212	2869	Fugitive Emissions	PER20080009	2249-V7
325212	2869	Loading apparatus	PER20080009	2249-V7
325212	2869	Fugitive Emissions	PER20100004	206-V2
325212	2869	Above ground storage vessel	PER20080009	2249-V7
325212	2869	Scrubber	PER20100004	206-V2
325212	2869	Scrubber	PER20100004	206-V2
325212	2869	Fugitive Emissions	PER20080009	2249-V7
325212	2869	Wastewater Treatment System	PER20080009	2249-V7
325212	2869	Wastewater Treatment System	PER20080009	2249-V7
325212	2869	Condenser	PER20100004	206-V2
325212	2869	Other	PER20080009	2249-V7
325212	2869	Other	PER20080009	2249-V7
325212	2869	Wastewater Treatment System	PER20080009	2249-V7
325212	2869	Other	PER20080009	2249-V7
325212	2869	Other	PER20080009	2249-V7
325212	2869	Above ground storage vessel	PER20080009	2249-V7
325212	2869	Other	PER20080009	2249-V7

PERMIT_NUMBER	PERMIT_ISSUED	PERMIT_END_DATE	EIQ#	SUBJ_ITEM_ID	SUBJ_ITEM_TYPE_DESC
206-V2	3/14/2011	3/2/2015	Mar-96	FUG00000000003	Equipment leaks
206-V2	3/14/2011	3/2/2015	Mar-96	FUG00000000003	Equipment leaks
2249-V6	6/16/2009	6/16/2014	Jan-93	FUG00000000004	Non equipment leaks
2249-V6	6/16/2009	6/16/2014	Apr-95	EQT00000000203	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	Apr-95	EQT00000000203	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	Jan-93	FUG00000000004	Non equipment leaks
2249-V6	6/16/2009	6/16/2014	1700-85	EQT00000000214	Loading apparatus
206-V2	3/14/2011	3/2/2015	Mar-96	FUG00000000003	Equipment leaks
2249-V6	6/16/2009	6/16/2014	1700-80	RLP00000000017	Stack/Vent
206-V2	3/14/2011	3/2/2015	7000-17	EQT00000000087	Scrubber
206-V2	3/14/2011	3/2/2015	1180-21	EQT00000000082	Scrubber
2249-V6	6/16/2009	6/16/2014	Jan-93	FUG00000000004	Non equipment leaks
2249-V6	6/16/2009	6/16/2014	May-95	EQT00000000204	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	May-95	EQT00000000204	Above ground storage vessel
206-V2	3/14/2011	3/2/2015	Feb-74	EQT00000000090	Condenser
2249-V6	6/16/2009	6/16/2014	1700-66	EQT00000000185	Other
2249-V6	6/16/2009	6/16/2014	1700-66	EQT00000000185	Other
2249-V6	6/16/2009	6/16/2014	Apr-95	EQT00000000203	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	1700-81	RLP00000000018	Stack/Vent
2249-V6	6/16/2009	6/16/2014	1700-81	RLP00000000018	Stack/Vent
2249-V6	6/16/2009	6/16/2014	1700-82	EQT00000000201	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	1700-83	RLP00000000019	Stack/Vent

SUBJECT_ITEM_DESC	PARAMETER_DESC	TPY_PERMITTED_EMISSIONS	Emissions (tons)
Fugitive Emissions	VOC, Total	0.13	1.16
Fugitive Emissions	Toluene	0.04	0.979
Fugitive Emissions - Neoprene Unit	Chloroprene	1.6	2.091
Surge Tank (Waste Water Tank)	VOC, Total	2.11	2.293
Surge Tank (Waste Water Tank)	Chloroprene	1.99	2.1695
Fugitive Emissions - Neoprene Unit	Tetrachloroethylene	0.02	0.102
Liquid Dispersion Loading (Truck, Tote, Rail Car)	VOC, Total	0.01	0.08
Fugitive Emissions	Hydrochloric acid	0.04	0.087
ACR Storage Common Vent Header (1700-80.1 & 80.2)	VOC, Total	0.07	0.101
HCl Feed Tanks' Scrubber	Chloroprene	1.09	1.111
HCl Product Tanks' Scrubber	Hydrochloric acid	0.03	0.044
Fugitive Emissions - Neoprene Unit	Dichloromethane	0.02	0.031
Aeration Tank (Waste Water Tank)	VOC, Total	0.02	0.027
Aeration Tank (Waste Water Tank)	Chloroprene	0.02	0.0255
Waste Storage Tanks' Condenser	Hydrochloric acid	1.09	1.095
Poly Building Wall Fans	Toluene	5.19	5.1925
Poly Building Wall Fans	Chloroprene	15.83	15.8315
Surge Tank (Waste Water Tank)	Toluene	0.06	0.0615
ACR Refining Vent	Hydrochloric acid	0.7	0.7
ACR Refining Vent	VOC, Total	2.2	2.2
ACR / Solvent Blend Tank	Xylene (mixed isomers)	0.001	0.0000125
ACR Drumming Vent	Xylene (mixed isomers)	0.001	0.0000005

Emissions minus Permit (tons)
1.03
0.939
0.491
0.183
0.1795
0.082
0.07
0.047
0.031
0.021
0.014
0.011
0.007
0.0055
0.005
0.0025
0.0015
0.0015
0
0
-0.0009875
-0.0009995

38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068

325212	2869	Other	PER20080009	2249-V7
325212	2869	Other	PER20100004	206-V2
325212	2869	Above ground storage vessel	PER20080009	2249-V7
325212	2869	Other	PER20100004	206-V2
325212	2869	Other	PER20080009	2249-V7
325212	2869	Above ground storage vessel	PER20080009	2249-V7
325212	2869	Above ground storage vessel	PER20080009	2249-V7
325212	2869	Above ground storage vessel	PER20080009	2249-V7
325212	2869	Above ground storage vessel	PER20080009	2249-V7
325212	2869	Above ground storage vessel	PER20080009	2249-V7
325212	2869	Above ground storage vessel	PER20080009	2249-V7
325212	2869	Above ground storage vessel	PER20080009	2249-V7
325212	2869	Above ground storage vessel	PER20080009	2249-V7
325212	2869	Above ground storage vessel	PER20080009	2249-V7
325212	2869	Above ground storage vessel	PER20080009	2249-V7
325212	2869	Above ground storage vessel	PER20080009	2249-V7
325212	2869	Above ground storage vessel	PER20080009	2249-V7
325212	2869	Above ground storage vessel	PER20080009	2249-V7
325212	2869	Above ground storage vessel	PER20080009	2249-V7
325212	2869	Above ground storage vessel	PER20080009	2249-V7
325212	2869	Above ground storage vessel	PER20080009	2249-V7
325212	2869	Above ground storage vessel	PER20080009	2249-V7
325212	2869	Other	PER20100004	206-V2
325212	2869	Above ground storage vessel	PER20080009	2249-V7

2249-V6	6/16/2009	6/16/2014	1700-83	RLP00000000019	Stack/Vent
206-V2	3/14/2011	3/2/2015	Jan-96	EQT00000000097	Miscellaneous
2249-V6	6/16/2009	6/16/2014	1700-75	EQT00000000194	Other
206-V2	3/14/2011	3/2/2015	Jan-96	EQT00000000097	Miscellaneous
2249-V6	6/16/2009	6/16/2014	1700-66	EQT00000000185	Other
2249-V6	6/16/2009	6/16/2014	1700-53	EQT00000000163	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	1700-54	EQT00000000164	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	1700-55	EQT00000000165	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	1700-67	EQT00000000186	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	1700-68	EQT00000000187	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	1700-69	EQT00000000188	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	1700-76	EQT00000000195	Other
2249-V6	6/16/2009	6/16/2014	1700-53	EQT00000000163	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	1700-54	EQT00000000164	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	1700-55	EQT00000000165	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	1700-67	EQT00000000186	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	1700-68	EQT00000000187	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	1700-69	EQT00000000188	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	1700-82	EQT00000000201	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	1700-82	EQT00000000201	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	1700-79	EQT00000000198	Other
206-V2	3/14/2011	3/2/2015	Jan-96	EQT00000000097	Miscellaneous
2249-V6	6/16/2009	6/16/2014	1700-77	EQT00000000196	Above ground storage vessel

ACR Drumming Vent	Dichloromethane		0.01	0.0085
Waste Loading Vent	VOC, Total		0.01	0.006
Resin 90 Railcar	VOC, Total		0.01	0.006
Waste Loading Vent	Chloroprene		0.01	0.0055
Poly Building Wall Fans	VOC, Total		27.94	27.935
Stripped Emulsion Tank No. 1	VOC, Total		0.01	0.004
Stripped Emulsion Tank No. 2	VOC, Total		0.01	0.004
Stripped Emulsion Tank No. 3	VOC, Total		0.01	0.004
Stripped Emulsion Tank No. 4	VOC, Total		0.01	0.004
Stripped Emulsion Tank No. 5	VOC, Total		0.01	0.004
Stripped Emulsion Tank No. 9	VOC, Total		0.01	0.004
Rosin S Railcar	VOC, Total		0.01	0.004
Stripped Emulsion Tank No. 1	Chloroprene		0.01	0.0035
Stripped Emulsion Tank No. 2	Chloroprene		0.01	0.0035
Stripped Emulsion Tank No. 3	Chloroprene		0.01	0.0035
Stripped Emulsion Tank No. 4	Chloroprene		0.01	0.0035
Stripped Emulsion Tank No. 5	Chloroprene		0.01	0.0035
Stripped Emulsion Tank No. 9	Chloroprene		0.01	0.0035
ACR / Solvent Blend Tank	Tetrachloroethylene		0.01	0.003
ACR / Solvent Blend Tank	Dichloromethane		0.02	0.013
Emergency Stabilizer Drumming	VOC, Total		0.01	0.002
Waste Loading Vent	Toluene		0.01	0.001
Octopol Storage Tank	VOC, Total		0.01	0.001

-0.0015

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38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068

325212	2869	Above ground storage vessel	PER20080009	2249-V7
325212	2869	Above ground storage vessel	PER20080009	2249-V7
325212	2869	Other	PER20080009	2249-V7
325212	2869	Above ground storage vessel	PER20080009	2249-V7
325212	2869	Above ground storage vessel	PER20080009	2249-V7
325212	2869	Above ground storage vessel	PER20080009	2249-V7
325212	2869	Above ground storage vessel	PER20080009	2249-V7
325212	2869	Above ground storage vessel	PER20080009	2249-V7
325212	2869	Above ground storage vessel	PER20080009	2249-V7
325212	2869	Above ground storage vessel	PER20080009	2249-V7
325212	2869	Above ground storage vessel	PER20080009	2249-V7
325212	2869	Wastewater Treatment System	PER20080009	2249-V7
325212	2869	Wastewater Treatment System	PER20080009	2249-V7
325212	2869	Other	PER20100004	206-V2
325212	2869	Fugitive Emissions	PER20080009	2249-V7
325212	2869	Other	PER20080009	2249-V7
325212	2869	Above ground storage vessel	PER20080009	2249-V7
325212	2869	Above ground storage vessel	PER20080009	2249-V7
325212	2869	Fugitive Emissions	PER20100004	206-V2
325212	2869	Other	PER20080009	2249-V7
325212	2869	Container	PER20080009	2249-V7
325212	2869	Container	PER20080009	2249-V7

2249-V6	6/16/2009	6/16/2014	1700-84A	EQT00000000212	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	1700-84B	EQT00000000213	Loading apparatus
2249-V6	6/16/2009	6/16/2014	1700-83	RLP00000000019	Stack/Vent
2249-V6	6/16/2009	6/16/2014	1700-70	EQT00000000189	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	1700-70	EQT00000000189	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	1700-71	EQT00000000190	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	1700-71	EQT00000000190	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	1700-72	EQT00000000191	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	1700-72	EQT00000000191	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	1700-73	EQT00000000192	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	1700-73	EQT00000000192	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	Mar-95	EQT00000000202	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	May-95	EQT00000000204	Above ground storage vessel
206-V2	3/14/2011	3/2/2015	7000-15	EQT00000000086	Furnace
2249-V6	6/16/2009	6/16/2014	Jan-93	FUG00000000004	Non equipment leaks
2249-V6	6/16/2009	6/16/2014	1700-2	RLP00000000014	Stack/Vent
2249-V6	6/16/2009	6/16/2014	1700-57	EQT00000000166	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	1700-82	EQT00000000201	Above ground storage vessel
206-V2	3/14/2011	3/2/2015	Mar-96	FUG00000000003	Equipment leaks
2249-V6	6/16/2009	6/16/2014	1700-83	RLP00000000019	Stack/Vent
2249-V6	6/16/2009	6/16/2014	1700-60	EQT00000000168	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	1700-61	EQT00000000169	Above ground storage vessel

Advance Fibres System (AFS) - Emulsion Shipping (Emulsion Blend Tank)	VOC, Total		0.01	0.001
Advance Fibres System (AFS) - Emulsion Shipping (Tote Loading)	VOC, Total		0.01	0.001
ACR Drumming Vent	Tetrachloroethylene		0.01	0.001
Stripped Emulsion Tank No. 11	Chloroprene		0.01	0.0005
Stripped Emulsion Tank No. 11	VOC, Total		0.01	0.0005
Stripped Emulsion Tank No. 12	Chloroprene		0.01	0.0005
Stripped Emulsion Tank No. 12	VOC, Total		0.01	0.0005
Stripped Emulsion Tank No. 15	Chloroprene		0.01	0.0005
Stripped Emulsion Tank No. 15	VOC, Total		0.01	0.0005
Stripped Emulsion Tank No. 16	Chloroprene		0.01	0.0005
Stripped Emulsion Tank No. 16	VOC, Total		0.01	0.0005
Diversion Tank (Waste Water Tank)	Toluene		0.01	0.000005
Aeration Tank (Waste Water Tank)	Toluene		0.01	0.000005
HCl Recovery Unit	Chloroprene		0.04	0.0215
Fugitive Emissions - Neoprene Unit	Xylene (mixed isomers)		0.02	0.0005
Strippers Condenser Vent	Toluene		0.03	0.0085
Diisobutylene (DIB) Storage Tank	VOC, Total		0.11	0.084
ACR / Solvent Blend Tank	VOC, Total		0.037	0.01
Fugitive Emissions	Chloroprene		0.04	0.012
ACR Drumming Vent	VOC, Total		0.034	0.006
Diisobutylene Nitrosate (DIBN) Storage Tank No. 3	VOC, Total		0.06	0.02
Diisobutylene Nitrosate (DIBN) Storage Tank No. 4	VOC, Total		0.06	0.02

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-0.0195

-0.0215

-0.026

-0.027

-0.028

-0.028

-0.04

-0.04

38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068

325212	2869 Container	PER20080009	2249-V7
325212	2869 Scrubber	PER20100004	206-V2
325212	2869 Fugitive Emissions	PER20080009	2249-V7
325212	2869 Other	PER20080009	2249-V7
325212	2869 Condenser	PER20100004	206-V2
325212	2869 Fugitive Emissions	PER20080009	2249-V7
325212	2869 Above ground storage vessel	PER20080009	2249-V7
325212	2869 Other	PER20080009	2249-V7
325212	2869 Wastewater Treatment System	PER20080009	2249-V7
325212	2869 Wastewater Treatment System	PER20080009	2249-V7
325212	2869 Condenser	PER20100004	206-V2
325212	2869 Other	PER20080009	2249-V7
325212	2869 Other	PER20080009	2249-V7
325212	2869 Other	PER20080009	2249-V7
325212	2869 Above ground storage vessel	PER20080009	2249-V7
325212	2869 Above ground storage vessel	PER20080009	2249-V7
325212	2869 Scrubber	PER20100004	206-V2
325212	2869 Other	PER20080009	2249-V7
325212	2869 Other	PER20100004	206-V2
325212	2869 Other	PER20080009	2249-V7
325212	2869 Condenser	PER20100004	206-V2

2249-V6	6/16/2009	6/16/2014	1700-62	EQT00000000170	Above ground storage vessel
206-V2	3/14/2011	3/2/2015	7000-17	EQT00000000087	Scrubber
2249-V6	6/16/2009	6/16/2014	Jan-93	FUG00000000004	Non equipment leaks
2249-V6	6/16/2009	6/16/2014	1700-5A	EQT00000000167	Above ground storage vessel
206-V2	3/14/2011	3/2/2015	Feb-74	EQT00000000090	Condenser
2249-V6	6/16/2009	6/16/2014	Jan-93	FUG00000000004	Non equipment leaks
2249-V6	6/16/2009	6/16/2014	1700-1	EQT00000000134	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	1700-56	RLP00000000016	Stack/Vent
2249-V6	6/16/2009	6/16/2014	Mar-95	EQT00000000202	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	Mar-95	EQT00000000202	Above ground storage vessel
206-V2	3/14/2011	3/2/2015	Feb-74	EQT00000000090	Condenser
2249-V6	6/16/2009	6/16/2014	1700-13	EQT00000000135	Other
2249-V6	6/16/2009	6/16/2014	1700-3	RLP00000000015	Stack/Vent
2249-V6	6/16/2009	6/16/2014	1700-13A	EQT00000000136	Other
2249-V6	6/16/2009	6/16/2014	1700-51	EQT00000000162	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	1700-51	EQT00000000162	Above ground storage vessel
206-V2	3/14/2011	3/2/2015	7000-17	EQT00000000087	Scrubber
2249-V6	6/16/2009	6/16/2014	1700-5A	EQT00000000167	Above ground storage vessel
206-V2	3/14/2011	3/2/2015	7000-15	EQT00000000086	Furnace
2249-V6	6/16/2009	6/16/2014	1700-5A	EQT00000000167	Above ground storage vessel
206-V2	3/14/2011	3/2/2015	Feb-74	EQT00000000090	Condenser

Diisobutylene Nitrosate (DIBN) Storage Tank No. 5	VOC, Total	0.06	0.02
HCl Feed Tanks' Scrubber	Toluene	0.26	0.219
Fugitive Emissions - Neoprene Unit	VOC, Total	2.23	2.156
No. 6 Emulsion Storage Tank Manhole	Toluene	0.23	0.131
Waste Storage Tanks' Condenser	Toluene	0.2	0.0715
Fugitive Emissions - Neoprene Unit	Toluene	0.22	0.0645
No. 7, 8, 10, 13, 14 Emulsion Storage Tks Manhole & Exhaust Blower	Toluene	0.38	0.212
No. 6, 7, 8, 10, 13, & 14 Unstripped Storage Tanks Depressure Vent (Surge Control Vessels)	Toluene	0.47	0.298
Diversion Tank (Waste Water Tank)	Chloroprene	0.19	0.00011
Diversion Tank (Waste Water Tank)	VOC, Total	0.21	0.001
Waste Storage Tanks' Condenser	Chloroprene	1.14	0.873
Poly Kettles Manholes / Strainers (1 & 2) Common Vent	Toluene	0.79	0.4435
Poly Kettles Vent Condenser	Toluene	0.53	0.1595
Poly Kettles Manholes / Strainers (3, 4, & 5) Common Vent	Toluene	0.98	0.546
Inhibitor Mix Tank (Surge Control Vessel)	Chloroprene	1.17	0.706
Inhibitor Mix Tank (Surge Control Vessel)	VOC, Total	1.17	0.706
HCl Feed Tanks' Scrubber	VOC, Total	1.96	1.39
No. 6 Emulsion Storage Tank Manhole	Chloroprene	1.49	0.836
HCl Recovery Unit	VOC, Total	0.94	0.025
No. 6 Emulsion Storage Tank Manhole	VOC, Total	2.19	1.227
Waste Storage Tanks' Condenser	VOC, Total	1.94	0.95

-0.04
-0.041
-0.074
-0.099
-0.1285
-0.1555
-0.168
-0.172
-0.18989
-0.209
-0.267
-0.3465
-0.3705
-0.434
-0.464
-0.464
-0.57
-0.654
-0.915
-0.963
-0.99

38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
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38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplace	70068

325212	2869	Above ground storage vessel	PER20080009	2249-V7
325212	2869	Above ground storage vessel	PER20080009	2249-V7
325212	2869	Above ground storage vessel	PER20080009	2249-V7
325212	2869	Other	PER20080009	2249-V7
325212	2869	Above ground storage vessel	PER20080009	2249-V7
325212	2869	Other	PER20080009	2249-V7
325212	2869	Other	PER20080009	2249-V7
325212	2869	Other	PER20100004	206-V2
325212	2869	Other	PER20080009	2249-V7
325212	2869	Other	PER20100004	206-V2
325212	2869	Other	PER20080009	2249-V7
325212	2869	Other	PER20080009	2249-V7
325212	2869	Other	PER20100004	206-V2
325212	2869	Other	PER20080009	2249-V7
325212	2869	Other	PER20080009	2249-V7
325212	2869	Other	PER20080009	2249-V7
325212	2869	Other	PER20080009	2249-V7
325212	2869	Other	PER20080009	2249-V7
325212	2869	Other	PER20100004	206-V2

2249-V6	6/16/2009	6/16/2014	1700-1	EQT00000000134	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	1700-21A	EQT00000000141	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	1700-21A	EQT00000000141	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	1700-56	RLP00000000016	Stack/Vent
2249-V6	6/16/2009	6/16/2014	1700-1	EQT00000000134	Above ground storage vessel
2249-V6	6/16/2009	6/16/2014	1700-56	RLP00000000016	Stack/Vent
2249-V6	6/16/2009	6/16/2014	1700-13	EQT00000000135	Other
206-V2	3/14/2011	3/2/2015	7000-15	EQT00000000086	Furnace
2249-V6	6/16/2009	6/16/2014	1700-13A	EQT00000000136	Other
206-V2	3/14/2011	3/2/2015	7000-15	EQT00000000086	Furnace
2249-V6	6/16/2009	6/16/2014	1700-13	EQT00000000135	Other
2249-V6	6/16/2009	6/16/2014	1700-13A	EQT00000000136	Other
206-V2	3/14/2011	3/2/2015	7000-15	EQT00000000086	Furnace
2249-V6	6/16/2009	6/16/2014	1700-2	RLP00000000014	Stack/Vent
2249-V6	6/16/2009	6/16/2014	1700-2	RLP00000000014	Stack/Vent
2249-V6	6/16/2009	6/16/2014	1700-2	RLP00000000014	Stack/Vent
2249-V6	6/16/2009	6/16/2014	1700-3	RLP00000000015	Stack/Vent
2249-V6	6/16/2009	6/16/2014	1700-3	RLP00000000015	Stack/Vent
206-V2	3/14/2011	3/2/2015	7000-15	EQT00000000086	Furnace

No. 7, 8, 10, 13, 14 Emulsion Storage Tks Manhole & Exhaust Blower	Chloroprene	2.42	1.357
2MM Pound CD Storage Tank	Chloroprene	5.77	4.686
2MM Pound CD Storage Tank	VOC, Total	5.77	4.686
No. 6, 7, 8, 10, 13, & 14 Unstripped Storage Tanks Depressure Vent (Surge Control Vessels)	Chloroprene	3	1.907
No. 7, 8, 10, 13, 14 Emulsion Storage Tks Manhole & Exhaust Blower	VOC, Total	3.56	1.991
No. 6, 7, 8, 10, 13, & 14 Unstripped Storage Tanks Depressure Vent (Surge Control Vessels)	VOC, Total	4.41	2.798
Poly Kettles Manholes / Strainers (1 & 2) Common Vent	Chloroprene	5.82	3.259
HCl Recovery Unit	Chlorine	3.9	1.26
Poly Kettles Manholes / Strainers (3, 4, & 5) Common Vent	Chloroprene	7.17	4.0145
HCl Recovery Unit	Carbon monoxide	8.3	5.09
Poly Kettles Manholes / Strainers (1 & 2) Common Vent	VOC, Total	8.15	4.562
Poly Kettles Manholes / Strainers (3, 4, & 5) Common Vent	VOC, Total	10.04	5.62
HCl Recovery Unit	Particulate matter (10 microns or less)	15.3	9.38
Strippers Condenser Vent	Ammonia	10.51	3.8255
Strippers Condenser Vent	Chloroprene	17.3	9.17
Strippers Condenser Vent	VOC, Total	17.36	9.182
Poly Kettles Vent Condenser	Chloroprene	34.39	22.8675
Poly Kettles Vent Condenser	VOC, Total	34.92	23.137
HCl Recovery Unit	Sulfur dioxide	37.1	0.965

-1.063

-1.084

-1.084

-1.093

-1.569

-1.612

-2.561

-2.64

-3.1555

-3.21

-3.588

-4.42

-5.92

-6.6845

-8.13

-8.178

-11.5225

-11.783

-36.135

38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplac e	70068
38806	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co - Pontchartrain Site	586 Hwy 44	Laplac e	70068

325212	2869 Other	PER20100004	206-V2
325212	2869 Other	PER20100004	206-V2

206-V2	3/14/2011	3/2/2015	7000-15	EQT00000000086	Furnace
206-V2	3/14/2011	3/2/2015	7000-15	EQT00000000086	Furnace

HCl Recovery Unit	Hydrochloric acid	45.9	4.906
HCl Recovery Unit	Nitrogen oxides	183.5	87.67

-40.994

-95.83

year	AI	AI_NAME	OWNER_NAME	ADDRESS1	ADDRESS2
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)

ADDRESS3	CITY	STATE_CODE	ZIPCODE	PRIMARY_NAICS_CODE	PRIMARY_SIC_CODE
	Laplace	LA	70068	325212	2869
	Laplace	LA	70068	325212	2869
	Laplace	LA	70068	325212	2869
	Laplace	LA	70068	325212	2869
	Laplace	LA	70068	325212	2869
	Laplace	LA	70068	325212	2869
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	Laplace	LA	70068	325212	2869
	Laplace	LA	70068	325212	2869
	Laplace	LA	70068	325212	2869
	Laplace	LA	70068	325212	2869
	Laplace	LA	70068	325212	2869

PARISH_OR_COUNTY_DESC	SOURCE_ID	NEDS_ID	SOURCE_DESCRIPTION
St. John the Baptist	HCL083		No. 1 HCl Product Tank
St. John the Baptist	HCL084		No. 2 HCl Product Tank
St. John the Baptist	HCL085		No. 3 HCl Product Tank
St. John the Baptist	NEOR15		Poly Kettles Vent Condenser
St. John the Baptist	HCL088		No. 1 HCl Unit Feed Tank
St. John the Baptist	NEO185	91	Poly Building Wall Fans
St. John the Baptist	HCL089		No. 2 HCl Unit Feed Tank
St. John the Baptist	NEO144	26	East Hot Dryer Exhaust
St. John the Baptist	NEO145	27	West Hot Dryer Exhaust
St. John the Baptist	NEOR14		Strippers Condenser Vent
St. John the Baptist	NEO139	17	CD Refining Column Jet
St. John the Baptist	NEO140	18	CD Refining Column Jet (Spare)
St. John the Baptist	MON003	40	Inhibitor Make-up and Feed Tanks
St. John the Baptist	MON003	40	Inhibitor Make-up and Feed Tanks
St. John the Baptist	MON004		Inhibitor Make-up Tank
St. John the Baptist	MON005		Inhibitor Feed Tank
St. John the Baptist	MON026	45	CD Vent Condenser
St. John the Baptist	NEO141	20	2MM Pound CD Storage Tank
St. John the Baptist	MON016	43	Emergency Inhibitor Make-up Tank
St. John the Baptist	MON016	43	Emergency Inhibitor Make-up Tank
St. John the Baptist	MON028	47	Emergency Inhibitor Feed Tank
St. John the Baptist	MON029	48	Toluene Storage Tank

SUBJECT_ITEM_ID	SOURCE_TYPE	PERMIT	EIQ	SOURCE_STATUS	SCC
EQT00000000083	Above ground storage vessel	206-V2	1180-21.1	Active	30102699
EQT00000000084	Above ground storage vessel	206-V2	1180-21.2	Active	30102699
EQT00000000085	Above ground storage vessel	206-V2	1180-21.3	Active	30102699
RLP00000000015	Other	2249-V7	1700-3	Active	30102699
EQT00000000088	Above ground storage vessel	206-V2	7000-17.1	Active	30102699
EQT00000000185	Other	2249-V7	1700-66	Active	30102699
EQT00000000089	Above ground storage vessel	206-V2	7000-17.2	Active	30102699
EQT00000000144	Other	2249-V7	1700-27	Active	30102699
EQT00000000145	Other	2249-V7	1700-28	Active	30102699
RLP00000000014	Other	2249-V7	1700-2	Active	30102699
EQT00000000139	Other	2249-V7	1700-20	Active	30102699
EQT00000000140	Other	2249-V7	1700-20A	Active	30102699
EQT00000000003	Above ground storage vessel	3000-V5	1110-1B	Active	30102625
EQT00000000003	Above ground storage vessel	3000-V5	1110-1B	Active	30102625
EQT00000000004	Above ground storage vessel	3000-V5	1110-1B.1	Active	30102625
EQT00000000005	Above ground storage vessel	3000-V5	1110-B.2	Active	30102625
EQT00000000026	Condenser	3000-V5	1110-4	Active	30102625
EQT00000000141	Above ground storage vessel	2249-V7	1700-21A	Active	30102699
EQT00000000016	Above ground storage vessel	3000-V5	1110-2B	Active	30102625
EQT00000000016	Above ground storage vessel	3000-V5	1110-2B	Active	30102625
EQT00000000028	Above ground storage vessel	3000-V5	1110-5B	Active	30102625
EQT00000000029	Above ground storage vessel	3000-V5	1110-9	Active	30102625

RELEASE_POINT_ID	RELEASE_POINT_DESCRIPTION	RELEASE_POINT_TYPE	HEIGHT_FT
RP0082	1180-21 HCL STORAGE	Vent	25
RP0082	1180-21 HCL STORAGE	Vent	25
RP0082	1180-21 HCL STORAGE	Vent	25
RPN015	1700-3 POLY KETTLES COMMON VENT	Stack	62.4
RP0087	7000-17 HCL FEED TANKS	Vent	10
RP0185	1700-66 BUILDING EXHAUST FAN	Area	3
RP0087	7000-17 HCL FEED TANKS	Vent	10
RP0144	1700-27 EAST HOT DRYER	Stack	65.5
RP0145	1700-28 WEST HOT DRYER	Stack	65.5
RPN014	1700-2 STRIPPERS COMMON VENT	Stack	62.4
RP0139	1700-20 CD REFINING COLUMN JETS	Stack	63.5
RP0140	1700-20A CD REFINING COLUMN JET SPARE	Stack	63.4
RP0003	1110-1B INHIBITOR MAKE UP TANK	Vent	65.6
RP0003	1110-1B INHIBITOR MAKE UP TANK	Vent	65.6
RP0003	1110-1B INHIBITOR MAKE UP TANK	Vent	65.6
RP0003	1110-1B INHIBITOR MAKE UP TANK	Vent	65.6
RP0026	1110-4 CD VENT CONDENSER	Stack	72
RP0141	1700-21A 2MMLB CD STORAGE TANK	Vent	48.2
RP0016	1110-2B EMERGENCY INHIBITOR MAKE UP TANK	Vent	65.6
RP0016	1110-2B EMERGENCY INHIBITOR MAKE UP TANK	Vent	65.6
RP0028	1110-5B INHIBITOR FEED TANK	Vent	5
RP0029	1110-9 TOLUENE STORAGE TANK	Vent	27.9

DIAMETER_FT	WIDTH_FT	LENGTH_FT	ORIENTATION_DEC_DEGREES	EXIT_GAS_FLOW_RATE_CFS
0.3			0	0.1625
0.3			0	0.1625
0.3			0	0.1625
0.3			0	0.3
0.2			0	0.1445
	500	500	0	7939.4
0.2			0	0.1445
3			0	476.7
3			0	476.7
0.3			0	0.1
0.2			0	0.1099
0.2			0	0.1099
0.3			0	0.1625
0.3			0	0.1625
0.3			0	0.1625
0.3			0	0.1625
0.1			0	0.1185
0.3			0	0.1625
0.3			0	0.1625
0.3			0	0.1625
0.3			0	0.1625
0.3			0	0.1625

EXIT_GAS_VELOCITY_FT_PER_SEC	EXIT_GAS_TEMPERATURE_DEG_F	MOISTURE_CONTENT_PERCENT
2.3	86	
2.3	86	
2.3	86	
4.2	34	
4.6	86	
	77	
4.6	86	
67.4	250	
67.4	250	
1.4	30	
3.5	65	
3.5	65	
2.3	77	
2.3	77	
2.3	77	
2.3	77	
15.1	60	
2.3	30	
2.3	77	
2.3	77	
2.3	77	
2.3	86	

LONGITUDE_DEC_DEGREES	LATITUDE_DEC_DEGREES	UTM_EASTING_M	UTM_NORTHLING_M
-90.52144	30.05708	738951.9	3327700
-90.52144	30.05708	738951.9	3327700
-90.52144	30.05708	738951.9	3327700
-90.52449	30.05899	738653.1	3327905.4
-90.52553	30.05669	738558.4	3327648.2
-90.52407	30.05902	738693.6	3327909.6
-90.52553	30.05669	738558.4	3327648.2
-90.52459	30.05943	738642.4	3327953.9
-90.52464	30.05942	738637.6	3327952.7
-90.52451	30.05903	738651.1	3327909.8
-90.52437	30.05821	738666.6	3327819.1
-90.52432	30.05821	738671.4	3327819.2
-90.52262	30.05518	738842.6	3327486.9
-90.52262	30.05518	738842.6	3327486.9
-90.52262	30.05518	738842.6	3327486.9
-90.52262	30.05518	738842.6	3327486.9
-90.52275	30.05533	738829.7	3327503.2
-90.52323	30.05748	738778.3	3327740.6
-90.52278	30.05527	738827	3327496.5
-90.52278	30.05527	738827	3327496.5
-90.52278	30.05521	738827.1	3327489.9
-90.52234	30.05547	738868.9	3327519.6

UTM_ZONE	HORIZONTAL_ACCURACY_MEASURE_M	HORIZONTAL_COLLECTION_METHOD	EMISSION_TYPE
15	50	06	Routine
15	50	06	Routine
15	50	06	Routine
15	50	06	Routine
15	50	06	Routine
15	50	06	Routine
15	50	06	Routine
15	50	06	Routine
15	50	06	Routine
15	50	06	Routine
15	50	06	Routine
15	50	06	Routine
15	50	06	Routine
15	50	06	Routine
15	50	06	Routine
15	50	06	Routine
15	50	06	Routine
15	50	06	Routine
15	50	06	Routine
15	50	06	Routine
15	50	06	Routine
15	50	06	Routine

POLLUTANT	CAS_	EMISSIONS	UNIT	Emissions (tons)
Hydrochloric acid	07647-01-0	0.01	lb	0.000005
Hydrochloric acid	07647-01-0	0.01	lb	0.000005
Hydrochloric acid	07647-01-0	0.01	lb	0.000005
Chloroprene	00126-99-8	45735	lb	22.8675
Toluene	00108-88-3	0.01	lb	0.000005
Chloroprene	00126-99-8	31663	lb	15.8315
Toluene	00108-88-3	0.01	lb	0.000005
Chloroprene	00126-99-8	24480	lb	12.24
Chloroprene	00126-99-8	24480	lb	12.24
Chloroprene	00126-99-8	18340	lb	9.17
Chloroprene	00126-99-8	10985	lb	5.4925
Chloroprene	00126-99-8	10985	lb	5.4925
Glycol ethers (Table 51.1)	00109-86-4	2	lb	0.001
Toluene	00108-88-3	24	lb	0.012
Toluene	00108-88-3	0.01	lb	0.000005
Toluene	00108-88-3	0.01	lb	0.000005
Chloroprene	00126-99-8	9392	lb	4.696
Chloroprene	00126-99-8	9372	lb	4.686
Glycol ethers (Table 51.1)	00109-86-4	2	lb	0.001
Toluene	00108-88-3	20	lb	0.01
Toluene	00108-88-3	2	lb	0.001
Toluene	00108-88-3	551	lb	0.2755

2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)

Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
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Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869

St. John the Baptist	MON046	71	1117-1 DCB Storage Tanks Vent
St. John the Baptist	NEO136	76	Poly Kettles Manholes / Strainers (3, 4, & 5) Common Vent
St. John the Baptist	MON046	71	1117-1 DCB Storage Tanks Vent
St. John the Baptist	MON047		West Crude Tank
St. John the Baptist	MON048		East Crude Tank
St. John the Baptist	MON049		1,4-DCB Tank
St. John the Baptist	MON050		Swing Tank
St. John the Baptist	MON051		HCl Feed Tank
St. John the Baptist	MON052		Waste Organic Tank
St. John the Baptist	MON053		t-1,4,-DCB Tank
St. John the Baptist	MON054	72	Cellosolve Storage Tank
St. John the Baptist	NEO135	11	Poly Kettles Manholes / Strainers (1 & 2) Common Vent
St. John the Baptist	NEOG08	09	Unstripped Emulsion Storage Tanks Common Vent
St. John the Baptist	NEO142	24	East Wash Belt Dryer
St. John the Baptist	NEO143	25	West Wash Belt Dryer
St. John the Baptist	MON064	53	Emergency Aqueous Tank
St. John the Baptist	NEO203	37	Surge Tank (Waste Water Tank)
St. John the Baptist	MON065	54	Chlorine Neutralization Tank North
St. John the Baptist	MON066	55	Chlorine Neutralization Tank South
St. John the Baptist	MON068		Diluent Tank
St. John the Baptist	MON069		Pentane Tank
St. John the Baptist	MON070		NMP Storage Tank

EQT00000000046	Above ground storage vessel	3000-V5	1117-1	Active	30102625
EQT00000000136	Other	2249-V7	1700-13A	Active	30102699
EQT00000000046	Above ground storage vessel	3000-V5	1117-1	Active	30102625
EQT00000000047	Above ground storage vessel	3000-V5	1117-1A	Active	30102625
EQT00000000048	Above ground storage vessel	3000-V5	1117-1B	Active	30102625
EQT00000000049	Above ground storage vessel	3000-V5	1117-1C	Active	30102625
EQT00000000050	Above ground storage vessel	3000-V5	1117-1D	Active	30102625
EQT00000000051	Above ground storage vessel	3000-V5	1117-1E	Active	30102625
EQT00000000052	Above ground storage vessel	3000-V5	1117-1F	Active	30102625
EQT00000000053	Above ground storage vessel	3000-V5	1117-1G	Active	30102625
EQT00000000054	Above ground storage vessel	3000-V5	1117-2	Active	30102625
EQT00000000135	Other	2249-V7	1700-13	Active	30102699
Not Listed	Above ground storage vessel	2249-V7	1700-5	Active	30102699
EQT00000000142	Other	2249-V7	1700-25	Active	30102699
EQT00000000143	Other	2249-V7	1700-26	Active	30102699
EQT00000000064	Above ground storage vessel	3000-V5	1150-25	Active	30102625
EQT00000000203	Wastewater Treatment System	2249-V7	4-95	Active	30102699
EQT00000000065	Above ground storage vessel	3000-V5	1192-1	Active	30102625
EQT00000000066	Above ground storage vessel	3000-V5	1192-2	Active	30102625
EQT00000000068	Above ground storage vessel	3000-V5	7000-10A.1	Active	30102625
EQT00000000069	Above ground storage vessel	3000-V5	7000-10A.2	Active	30102625
EQT00000000070	Above ground storage vessel	3000-V5	7000-10A.3	Active	30102625

RP0046	1117-1 DCB STORAGE TANKS VENT	Vent	50
RP0136	1700-13A LPK MH/STRAINERS (3,4 & 5)	Vent	59
RP0046	1117-1 DCB STORAGE TANKS VENT	Vent	50
RP0046	1117-1 DCB STORAGE TANKS VENT	Vent	50
RP0046	1117-1 DCB STORAGE TANKS VENT	Vent	50
RP0046	1117-1 DCB STORAGE TANKS VENT	Vent	50
RP0046	1117-1 DCB STORAGE TANKS VENT	Vent	50
RP0046	1117-1 DCB STORAGE TANKS VENT	Vent	50
RP0046	1117-1 DCB STORAGE TANKS VENT	Vent	50
RP0046	1117-1 DCB STORAGE TANKS VENT	Vent	50
RP0054	1117-2 CELLOSOLVE STORAGE TANK	Vent	25
RP0135	1700-13 POLYKETTLE MANHOLE	Vent	58.2
RPG008	1700-5 EMUL STORAGE TANKS 4,5,6,7, & 8	Vent	55
RP0142	1700-25 EAST WASH BELT DRYER	Stack	31
RP0143	1700-26 WEST WASH BELT DRYER	Stack	31
RP0064	1150-25 EMERGENCY AQUEOUS TANK	Vent	30.1
RP0203	4-95 NO. 1 AERATION TANK	Area	3
RP0065	1192-1 CHLORINE NEUTRALIZATION TANK - NORTH	Vent	30.6
RP0066	1192-2 CHLORINE NEUTRALIZATION TANK - SOUTH	Vent	30.6
RP0067	7000-10A FLARE STACK	Stack	129
RP0067	7000-10A FLARE STACK	Stack	129
RP0067	7000-10A FLARE STACK	Stack	129

0.3			0	0.1625
2			0	141.7
0.3			0	0.1625
0.3			0	0.1625
0.3			0	0.1625
0.3			0	0.1625
0.3			0	0.1625
0.3			0	0.1625
0.3			0	0.1625
0.3			0	0.1625
0.5			0	0.2
1.3			0	115
0.2			0	0.2419
14.1			0	2841.8
14.1			0	2841.8
0.3			0	0.1625
	60	60	0	0
0.8			0	0.5
0.8			0	0.5
6.5			0	2010.9
6.5			0	2010.9
6.5			0	2010.9

2.3	83
45.1	77
2.3	83
2.3	83
2.3	83
2.3	83
2.3	83
2.3	83
2.3	83
2.3	83
1	77
82.4	77
7.7	77
18.2	104
18.2	104
2.3	86
	77
1	82
1	82
60.6	1832
60.6	1832
60.6	1832

-90.52235	30.05568	738867.5	3327542.9
-90.52453	30.05903	738649.2	3327909.7
-90.52235	30.05568	738867.5	3327542.9
-90.52235	30.05568	738867.5	3327542.9
-90.52235	30.05568	738867.5	3327542.9
-90.52235	30.05568	738867.5	3327542.9
-90.52235	30.05568	738867.5	3327542.9
-90.52235	30.05568	738867.5	3327542.9
-90.52235	30.05568	738867.5	3327542.9
-90.52235	30.05568	738867.5	3327542.9
-90.5222	30.05556	738882.2	3327529.9
-90.52452	30.05898	738650.3	3327904.2
-90.52435	30.05898	738666.7	3327904.5
-90.52458	30.05944	738643.4	3327955.1
-90.52467	30.05941	738634.8	3327951.5
-90.52314	30.05727	738787.5	3327717.5
-90.52578	30.06027	738525.7	3328044.6
-90.52167	30.05627	738931.6	3327609.7
-90.52165	30.05619	738933.7	3327600.9
-90.52531	30.05714	738578.5	3327698.6
-90.52531	30.05714	738578.5	3327698.6
-90.52531	30.05714	738578.5	3327698.6

15	50 06	Routine
15	50 06	Routine
15	50 06	Routine
15	50 06	Routine
15	50 06	Routine
15	50 06	Routine
15	50 06	Routine
15	50 06	Routine
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15	50 06	Routine
15	50 06	Routine
15	50 06	Routine
15	50 06	Routine
15	50 06	Routine
15	50 06	Routine

Hydrochloric acid	07647-01-0	2716 lb	1.358
Chloroprene	00126-99-8	8029 lb	4.0145
Toluene	00108-88-3	1 lb	0.0005
Hydrochloric acid	07647-01-0	0.01 lb	0.000005
Hydrochloric acid	07647-01-0	0.01 lb	0.000005
Hydrochloric acid	07647-01-0	0.01 lb	0.000005
Hydrochloric acid	07647-01-0	0.01 lb	0.000005
Hydrochloric acid	07647-01-0	0.01 lb	0.000005
Hydrochloric acid	07647-01-0	0.01 lb	0.000005
Hydrochloric acid	07647-01-0	0.01 lb	0.000005
Glycol ethers (Table 51.1)	00109-86-4	2 lb	0.001
Chloroprene	00126-99-8	6518 lb	3.259
Chloroprene	00126-99-8	4950 lb	2.475
Chloroprene	00126-99-8	4785 lb	2.3925
Chloroprene	00126-99-8	4785 lb	2.3925
1,3-Butadiene	00106-99-0	0.4 lb	0.0002
Chloroprene	00126-99-8	4339 lb	2.1695
Chlorine	07782-50-5	149 lb	0.0745
Chlorine	07782-50-5	149 lb	0.0745
1,3-Butadiene	00106-99-0	0.01 lb	0.000005
1,3-Butadiene	00106-99-0	0.01 lb	0.000005
1,3-Butadiene	00106-99-0	0.01 lb	0.000005

2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)

2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)

Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
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Laplace	LA	70068	325212	2869
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Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869

St. John the Baptist	MON116		Recovery Tails Tank
St. John the Baptist	NEOFUG	35	Fugitive Emissions - Neoprene Unit
St. John the Baptist	NEO134	01	No. 7, 8, 10, 13, 14 Emulsion Storage Tks Manhole & Exhaust Blower
St. John the Baptist	NEOG10	88	Vent Header System
St. John the Baptist	NEOR16	81	No. 6, 7, 8, 10, 13, & 14 Unstripped Storage Tanks Depressure Vent (Surge Control Vessels)
St. John the Baptist	MONC17		CHLOROPRENE UNIT CONDITION XVII
St. John the Baptist	NEOC17		NEOPRENE UNIT CONDITION XVII
St. John the Baptist	NEO134	01	No. 7, 8, 10, 13, 14 Emulsion Storage Tks Manhole & Exhaust Blower
St. John the Baptist	HCL087	63	HCl Feed Tanks' Scrubber
St. John the Baptist	MON059	52	Aqueous Storage Vent Condenser
St. John the Baptist	NEO156		Stabilizer Tank No. 1 (Surge Control Vessel)
St. John the Baptist	NEO157		Stabilizer Tank No. 2 (Surge Control Vessel)
St. John the Baptist	NEO158		Stabilizer Tank No. 3 (Surge Control Vessel)
St. John the Baptist	NEO159		Stabilizer Tank No. 4 (Surge Control Vessel)
St. John the Baptist	NEO160		Stabilizer Tank No. 5 (Surge Control Vessel)
St. John the Baptist	NEO161		Stabilizer Tank - LD750 (Surge Control Vessel)
St. John the Baptist	HCL090	61	Waste Storage Tanks' Condenser
St. John the Baptist	NEO167	10	No. 6 Emulsion Storage Tank Manhole
St. John the Baptist	NEO230		No. 10 Emulsion Storage Tank Manway
St. John the Baptist	MONFUG	58	Chloroprene Unit - Fugitive Emissions
St. John the Baptist	NEO162	34	Inhibitor Mix Tank (Surge Control Vessel)
St. John the Baptist	MON017	44	Isom Reactor Vent System
St. John the Baptist	NEO231		No. 13 Emulsion Storage Tank Manway

EQT00000000227	Above ground storage vessel	3000-V5	1117-1H	Active	30102625
FUG00000000004	Fugitive Emissions	2249-V7	1-93	Active	30102699
EQT00000000134	Above ground storage vessel	2249-V7	1700-1	Active	30102699
Not Listed	Other	2249-V7	1700-63	Active	30102699
RLP00000000016	Other	2249-V7	1700-56	Active	30102699
EMS00000000003	GC XVII Emissions	3000-V5		Active	30102625
EMS00000000005	GC XVII Emissions	2249-V7		Active	30102699
EQT00000000134	Above ground storage vessel	2249-V7	1700-1	Active	30102699
EQT00000000087	Scrubber	206-V2	7000-17	Active	30102699
EQT00000000059	Condenser	3000-V5	1140-20	Active	30102625
EQT00000000156	Above ground storage vessel	2249-V7	1700-50.1	Active	30102699
EQT00000000157	Above ground storage vessel	2249-V7	1700-50.2	Active	30102699
EQT00000000158	Above ground storage vessel	2249-V7	1700-50.3	Active	30102699
EQT00000000159	Above ground storage vessel	2249-V7	1700-50.4	Active	30102699
EQT00000000160	Above ground storage vessel	2249-V7	1700-50.5	Active	30102699
EQT00000000161	Above ground storage vessel	2249-V7	1700-50.6	Active	30102699
EQT00000000090	Condenser	206-V2	2-74	Active	30102699
EQT00000000167	Other	2249-V7	1700-5A	Active	30102699
EQT00000000230	Other	2249-V7	1700-87	Active	30102699
FUG00000000001	Fugitive Emissions	3000-V5	3-91	Active	30102625
EQT00000000162	Above ground storage vessel	2249-V7	1700-51	Active	30102699
EQT00000000017	Reactor vessel	3000-V5	1110-3	Active	30102625
EQT00000000231	Other	2249-V7	1700-88	Active	30102699

RP0046	1117-1 DCB STORAGE TANKS VENT	Vent	50
RPF004	1-93 FUGITIVE EMISSIONS NEOPRENE UNIT	Fugitive	3
RP0134	1700-1 NO. 7 & 8 EMULSION MANHOLES	Vent	53.8
RPG010	1700-63 1712 COMMON VENT HEADER	Stack	33
RPN016	1700-56 UNSTRIPPED TANKS DEPRESS. VENT	Stack	55
RPMC17	CHLOROPRENE UNIT GC XVII	Area	3
RPNC17	NEOPRENE UNIT GC XVII	Area	3
RP0134	1700-1 NO. 7 & 8 EMULSION MANHOLES	Vent	53.8
RP0087	7000-17 HCL FEED TANKS	Vent	10
RP0059	1140-20 AQUEOUS STORAGE VENT CONDENSER	Stack	53.1
RPG009	1700-50 STABILIZER TANKS	Stack	54
RPG009	1700-50 STABILIZER TANKS	Stack	54
RPG009	1700-50 STABILIZER TANKS	Stack	54
RPG009	1700-50 STABILIZER TANKS	Stack	54
RPG009	1700-50 STABILIZER TANKS	Stack	54
RPG009	1700-50 STABILIZER TANKS	Stack	54
RP0090	2-74 WASTE STORAGE TANKS	Vent	43.5
RP0167	1700-5A NO. 6 EMUL STORAGE TANK MANHOLE	Vent	53.8
RPN230	No. 10 Emulsion Storage Tank Manway	Vent	55
RPF001	3-91 FUGITIVE EMISSIONS CHLOROPRENE UNIT	Fugitive	3
RP0162	1700-51 INHIBITOR MIX TANK	Vent	59
RP0017	1110-3 ISOM REACTOR VENT	Stack	58.4
RPN231	No. 13 Emulsion Storage Tank Manway	Vent	55

0.3			0	0.1625
	5000	5000	0	0
1.2			0	38.5
0.1			0	0.0534
0.2			0	18.8
	1000	1000	0	
	1000	1000	0	
1.2			0	38.5
0.2			0	0.1445
0.3			0	0.1625
0.2			0	0.1696
0.2			0	0.1696
0.2			0	0.1696
0.2			0	0.1696
0.2			0	0.1696
0.2			0	0.1696
0.2			0	0.2
1.3			0	123.3
0.17			0	1.4
	5000	5000	0	0
0.3			0	0.1625
0.2			0	0.1288
0.17			0	1.4

2.3	83
	80
34	77
6.8	41
600	77
34	77
4.6	86
2.3	41
5.4	77
5.4	77
5.4	77
5.4	77
5.4	77
5.4	77
6.1	43
88.3	77
60	77
	80
2.3	37
4.1	86
60	77

-90.52235	30.05568	738867.5	3327542.9
-90.52424	30.05876	738677.8	3327880.4
-90.52428	30.05902	738673.3	3327909.1
-90.52446	30.0581	738658.2	3327806.8
-90.52429	30.05901	738672.4	3327908
-90.52326	30.05517	738780.9	3327484.4
-90.52422	30.05877	738679.7	3327881.5
-90.52428	30.05902	738673.3	3327909.1
-90.52553	30.05669	738558.4	3327648.2
-90.52131	30.05613	738966.7	3327594.9
-90.52411	30.05862	738690.7	3327865.1
-90.52411	30.05862	738690.7	3327865.1
-90.52411	30.05862	738690.7	3327865.1
-90.52411	30.05862	738690.7	3327865.1
-90.52411	30.05862	738690.7	3327865.1
-90.52411	30.05862	738690.7	3327865.1
-90.52601	30.05576	738514.3	3327544.1
-90.52434	30.05897	738667.7	3327903.5
-90.52427	30.05902	738674.3	3327909.1
-90.5229	30.05534	738815.2	3327504
-90.52403	30.05862	738698.4	3327865.3
-90.52342	30.05556	738764.6	3327527.3
-90.52428	30.05901	738673.3	3327908

15	50 06	Routine
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15	50 06	Routine

Hydrochloric acid	07647-01-0	1 lb	0.0005
Chloroprene	00126-99-8	4182 lb	2.091
Toluene	00108-88-3	424 lb	0.212
Chloroprene	00126-99-8	3878 lb	1.939
Chloroprene	00126-99-8	3814 lb	1.907
Chloroprene	00126-99-8	3100 lb	1.55
Chloroprene	00126-99-8	2797 lb	1.3985
Chloroprene	00126-99-8	2714 lb	1.357
Chloroprene	00126-99-8	2222 lb	1.111
Chloroprene	00126-99-8	2111 lb	1.0555
Toluene	00108-88-3	0.01 lb	0.000005
Toluene	00108-88-3	0.01 lb	0.000005
Toluene	00108-88-3	0.01 lb	0.000005
Toluene	00108-88-3	0.01 lb	0.000005
Toluene	00108-88-3	0.01 lb	0.000005
Toluene	00108-88-3	0.01 lb	0.000005
Chloroprene	00126-99-8	1746 lb	0.873
Chloroprene	00126-99-8	1672 lb	0.836
Chloroprene	00126-99-8	1666 lb	0.833
Chloroprene	00126-99-8	1481 lb	0.7405
Chloroprene	00126-99-8	1412 lb	0.706
Chloroprene	00126-99-8	1085 lb	0.5425
Chloroprene	00126-99-8	1041 lb	0.5205

2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
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2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)

Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
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Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869

St. John the Baptist	NEO232		No. 14 Emulsion Storage Tank Manway
St. John the Baptist	MON006	41	Refining Jets Vent System
St. John the Baptist	NEOR13		Stabilizer & Catalyst Tanks Manholes Vent
St. John the Baptist	MON027	46	Catalyst Sludge Receiver
St. John the Baptist	HCLC17		HCL UNIT CONDITION XVII
St. John the Baptist	NEO183	89	Water Solution Exhaust Fan
St. John the Baptist	NEO204	38	Aeration Tank (Waste Water Tank)
St. John the Baptist	NEO183	89	Water Solution Exhaust Fan
St. John the Baptist	HCL086	62	HCl Recovery Unit
St. John the Baptist	HCLFUG	93	Fugitive Emissions
St. John the Baptist	MON067	56	Monomer Flare
St. John the Baptist	HCL097	75	Waste Loading Vent
St. John the Baptist	NEO163	78	Stripped Emulsion Tank No. 1
St. John the Baptist	NEO164	79	Stripped Emulsion Tank No. 2
St. John the Baptist	NEO165	80	Stripped Emulsion Tank No. 3
St. John the Baptist	NEO201		ACR / Solvent Blend Tank
St. John the Baptist	NEO201		ACR / Solvent Blend Tank
St. John the Baptist	NEO201		ACR / Solvent Blend Tank
St. John the Baptist	NEO186		Stripped Emulsion Tank No. 4
St. John the Baptist	NEOG08	09	Unstripped Emulsion Storage Tanks Common Vent
St. John the Baptist	NEOG09	33	Stabilizer Tanks Vent
St. John the Baptist	HCL090	61	Waste Storage Tanks' Condenser
St. John the Baptist	NEO187		Stripped Emulsion Tank No. 5

EQT00000000232	Other	2249-V7	1700-89	Active	30102699
EQT00000000006	Scrubber	3000-V5	1110-2	Active	30102625
RLP00000000013	Other	2249-V7	1700-14B.3	Active	30102699
EQT00000000027	Container	3000-V5	1110-4B	Active	30102625
EMS00000000001	GC XVII Emissions	206-V2		Active	30102699
EQT00000000183	Above ground storage vessel	2249-V7	1700-64	Active	30102699
EQT00000000204	Wastewater Treatment System	2249-V7	5-95	Active	30102699
EQT00000000183	Above ground storage vessel	2249-V7	1700-64	Active	30102699
EQT00000000086	Other	206-V2	7000-15	Active	30102699
FUG00000000003	Fugitive Emissions	206-V2	3-96	Active	30102699
EQT00000000067	Flare	3000-V5	7000-10A	Active	30102625
EQT00000000097	Other	206-V2	1-96	Active	30102699
EQT00000000163	Above ground storage vessel	2249-V7	1700-53	Active	30102699
EQT00000000164	Above ground storage vessel	2249-V7	1700-54	Active	30102699
EQT00000000165	Above ground storage vessel	2249-V7	1700-55	Active	30102699
EQT00000000201	Above ground storage vessel	2249-V7	1700-82	Active	30102699
EQT00000000201	Above ground storage vessel	2249-V7	1700-82	Active	30102699
EQT00000000201	Above ground storage vessel	2249-V7	1700-82	Active	30102699
EQT00000000186	Above ground storage vessel	2249-V7	1700-67	Active	30102699
Not Listed	Above ground storage vessel	2249-V7	1700-5	Active	30102699
Not Listed	Above ground storage vessel	2249-V7	1700-50	Active	30102699
EQT00000000090	Condenser	206-V2	2-74	Active	30102699
EQT00000000187	Above ground storage vessel	2249-V7	1700-68	Active	30102699

RPN232	No. 14 Emulsion Storage Tank Manway	Vent	55
RP0006	1110-2 JET VENT SCRUBBER	Stack	98
RPG006	1700-14B SOLUITON MAKE UP	Stack	57
RP0027	1110-4B CATALYST SLUDGE RECEIVER	Stack	80
RPHC17	HCL UNI GC XVII	Area	3
RP0183	1700-64 WATER SOLUTION MH FAN	Vent	53.6
RP0204	5-95 NO. 2 AERATION TANK	Area	3
RP0183	1700-64 WATER SOLUTION MH FAN	Vent	53.6
RP0086	7000-15 HCL RECOVERY UNIT	Stack	120
RPF003	3-96 HCL UNIT FUGITIVE EMISSIONS	Fugitive	3
RP0067	7000-10A FLARE STACK	Stack	129
RP0097	1-96 WASTE LOADING VENT	Stack	43.5
RP0163	1700-53 STRIPPED EMULSION TANK #1	Vent	38
RP0164	1700-54 STRIPPED EMULSION TANK #2	Vent	38
RP0165	1700-55 STRIPPED EMULSION TANK #3	Vent	38
RP0201	1700-82 - ACR / Solvent Blend Tank	Vent	30
RP0201	1700-82 - ACR / Solvent Blend Tank	Vent	30
RP0201	1700-82 - ACR / Solvent Blend Tank	Vent	30
RP0186	1700-67 STRIPPED EMULSION TANK # 4	Vent	38
RPG008	1700-5 EMUL STORAGE TANKS 4,5,6,7, & 8	Vent	55
RPG009	1700-50 STABILIZER TANKS	Stack	54
RP0090	2-74 WASTE STORAGE TANKS	Vent	43.5
RP0187	1700-68 STRIPPED EMULSION TANK # 5	Vent	38

0.17			0	1.4
0.3			0	0.3463
1.5			0	185
0.3			0	0.1625
	1000	1000	0	
1.3			0	39.6
	60	60	0	0
1.3			0	39.6
1.5			0	79.5
	5000	5000	0	0
6.5			0	2010.9
0.2			0	0.2
0.3			0	0.1625
0.3			0	0.1625
0.3			0	0.1625
0.3			0	0.1625
0.3			0	0.1625
0.3			0	0.1625
0.3			0	0.1625
0.2			0	0.2419
0.2			0	0.1696
0.2			0	0.2
0.3			0	0.1625

60	77
4.9	75
104.7	77
2.3	86
29.8	77
	77
29.8	77
45	110
	80
60.6	1832
6.1	86
2.3	77
2.3	77
2.3	77
2.3	30
2.3	30
2.3	30
2.3	77
7.7	77
5.4	77
6.1	43
2.3	77

-90.52426	30.05902	738675.2	3327909.2
-90.52283	30.05538	738821.9	3327508.6
-90.52443	30.05886	738659.2	3327891.1
-90.5227	30.05519	738834.9	3327487.8
-90.52573	30.0567	738539.1	3327648.9
-90.52421	30.05856	738681.2	3327858.3
-90.52549	30.05976	738554.9	3327988.6
-90.52421	30.05856	738681.2	3327858.3
-90.52579	30.05681	738533	3327661
-90.52565	30.0568	738546.5	3327660.2
-90.52531	30.05714	738578.5	3327698.6
-90.52613	30.05587	738502.5	3327556.1
-90.52441	30.05897	738660.9	3327903.3
-90.52443	30.05896	738659	3327902.2
-90.52439	30.05899	738662.8	3327905.6
-90.52438	30.05788	738666.4	3327782.5
-90.52438	30.05788	738666.4	3327782.5
-90.52438	30.05788	738666.4	3327782.5
-90.52439	30.05897	738662.8	3327903.4
-90.52435	30.05898	738666.7	3327904.5
-90.52411	30.05862	738690.7	3327865.1
-90.52601	30.05576	738514.3	3327544.1
-90.52435	30.05901	738666.6	3327907.9

15	50 06	Routine
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15	50 06	Routine
15	50 06	Routine

Chloroprene	00126-99-8	1041 lb	0.5205
Chloroprene	00126-99-8	987 lb	0.4935
Chloroprene	00126-99-8	740 lb	0.37
Chloroprene	00126-99-8	355 lb	0.1775
Chloroprene	00126-99-8	305 lb	0.1525
Chloroprene	00126-99-8	166 lb	0.083
Chloroprene	00126-99-8	51 lb	0.0255
Toluene	00108-88-3	55 lb	0.0275
Chloroprene	00126-99-8	43 lb	0.0215
Chloroprene	00126-99-8	24 lb	0.012
Chloroprene	00126-99-8	20 lb	0.01
Chloroprene	00126-99-8	11 lb	0.0055
Chloroprene	00126-99-8	7 lb	0.0035
Chloroprene	00126-99-8	7 lb	0.0035
Chloroprene	00126-99-8	7 lb	0.0035
Dichloromethane	00075-09-2	26 lb	0.013
Tetrachloroethylene	00127-18-4	6 lb	0.003
Xylene (mixed isomers)	01330-20-7	0.025 lb	0.0000125
Chloroprene	00126-99-8	7 lb	0.0035
Toluene	00108-88-3	47 lb	0.0235
Toluene	00108-88-3	318 lb	0.159
Hydrochloric acid	07647-01-0	2190 lb	1.095
Chloroprene	00126-99-8	7 lb	0.0035

2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)

Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
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Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869

St. John the Baptist	HCL090	61	Waste Storage Tanks' Condenser
St. John the Baptist	MON013	42	DCB Storage Tanks Condenser
St. John the Baptist	NEO188		Stripped Emulsion Tank No. 9
St. John the Baptist	MON046	71	1117-1 DCB Storage Tanks Vent
St. John the Baptist	MON026	45	CD Vent Condenser
St. John the Baptist	MON059	52	Aqueous Storage Vent Condenser
St. John the Baptist	MON064	53	Emergency Aqueous Tank
St. John the Baptist	MON059	52	Aqueous Storage Vent Condenser
St. John the Baptist	MON014		DCB Storage Tank No. 1
St. John the Baptist	MON007		JVC Effluent Tank
St. John the Baptist	MON015		DCB Storage Tank No. 2
St. John the Baptist	MON060		Diversion Tank
St. John the Baptist	MON061		Aqueous Clarifier Tank
St. John the Baptist	MON062		No.1 CD Brine Tank
St. John the Baptist	MON063		No.2 CD Brine Tank
St. John the Baptist	NEO150		Unstripped Emulsion Storage Tank No. 6 (Surge Control Vessel)
St. John the Baptist	NEO151		Unstripped Emulsion Storage Tank No. 7 (Surge Control Vessel)
St. John the Baptist	MON027	46	Catalyst Sludge Receiver
St. John the Baptist	MON071		Flare Tank Separator
St. John the Baptist	MON008		Pentane Column
St. John the Baptist	NEO152		Unstripped Emulsion Storage Tank No. 8 (Surge Control Vessel)
St. John the Baptist	MON009		Heads Column
St. John the Baptist	NEO153		Unstripped Emulsion Storage Tank No. 10 (Surge Control Vessel)

EQT00000000090	Condenser	206-V2	2-74	Active	30102699
EQT00000000013	Condenser	3000-V5	1110-2A	Active	30102625
EQT00000000188	Above ground storage vessel	2249-V7	1700-69	Active	30102699
EQT00000000046	Above ground storage vessel	3000-V5	1117-1	Active	30102625
EQT00000000026	Condenser	3000-V5	1110-4	Active	30102625
EQT00000000059	Condenser	3000-V5	1140-20	Active	30102625
EQT00000000064	Above ground storage vessel	3000-V5	1150-25	Active	30102625
EQT00000000059	Condenser	3000-V5	1140-20	Active	30102625
EQT00000000014	Above ground storage vessel	3000-V5	1110-2A.1	Active	30102625
EQT00000000007	Container	3000-V5	1110-2.1	Active	30102625
EQT00000000015	Above ground storage vessel	3000-V5	1110-2A.2	Active	30102625
EQT00000000060	Above ground storage vessel	3000-V5	1140-20A	Active	30102625
EQT00000000061	Above ground storage vessel	3000-V5	1140-20B	Active	30102625
EQT00000000062	Above ground storage vessel	3000-V5	1140-20C	Active	30102625
EQT00000000063	Above ground storage vessel	3000-V5	1140-20D	Active	30102625
EQT00000000150	Above ground storage vessel	2249-V7	1700-5.3	Active	30102699
EQT00000000151	Above ground storage vessel	2249-V7	1700-5.4	Active	30102699
EQT00000000027	Container	3000-V5	1110-4B	Active	30102625
EQT00000000071	Container	3000-V5	7000-10A.4	Active	30102625
EQT00000000008	Distillation unit	3000-V5	1110-2.2	Active	30102625
EQT00000000152	Above ground storage vessel	2249-V7	1700-5.5	Active	30102699
EQT00000000009	Distillation unit	3000-V5	1110-2.3	Active	30102625
EQT00000000153	Above ground storage vessel	2249-V7	1700-5.6	Active	30102699

RP0090	2-74 WASTE STORAGE TANKS	Vent	43.5
RP0013	1110-2A DCB STORAGE TANK VENTS (1031)	Vent	23.5
RP0188	1700-69 STRIPPED EMULSION TANK # 9	Vent	38
RP0046	1117-1 DCB STORAGE TANKS VENT	Vent	50
RP0026	1110-4 CD VENT CONDENSER	Stack	72
RP0059	1140-20 AQUEOUS STORAGE VENT CONDENSER	Stack	53.1
RP0064	1150-25 EMERGENCY AQUEOUS TANK	Vent	30.1
RP0059	1140-20 AQUEOUS STORAGE VENT CONDENSER	Stack	53.1
RP0013	1110-2A DCB STORAGE TANK VENTS (1031)	Vent	23.5
RP0006	1110-2 JET VENT SCRUBBER	Stack	98
RP0013	1110-2A DCB STORAGE TANK VENTS (1031)	Vent	23.5
RP0059	1140-20 AQUEOUS STORAGE VENT CONDENSER	Stack	53.1
RP0059	1140-20 AQUEOUS STORAGE VENT CONDENSER	Stack	53.1
RP0059	1140-20 AQUEOUS STORAGE VENT CONDENSER	Stack	53.1
RP0059	1140-20 AQUEOUS STORAGE VENT CONDENSER	Stack	53.1
RPG008	1700-5 EMUL STORAGE TANKS 4,5,6,7, & 8	Vent	55
RPG008	1700-5 EMUL STORAGE TANKS 4,5,6,7, & 8	Vent	55
RP0027	1110-4B CATALYST SLUDGE RECEIVER	Stack	80
RP0067	7000-10A FLARE STACK	Stack	129
RP0006	1110-2 JET VENT SCRUBBER	Stack	98
RPG008	1700-5 EMUL STORAGE TANKS 4,5,6,7, & 8	Vent	55
RP0006	1110-2 JET VENT SCRUBBER	Stack	98
RPG008	1700-5 EMUL STORAGE TANKS 4,5,6,7, & 8	Vent	55

0.2	0	0.2
0.3	0	0.1625
0.3	0	0.1625
0.3	0	0.1625
0.1	0	0.1185
0.3	0	0.1625
0.3	0	0.1625
0.3	0	0.1625
0.3	0	0.1625
0.3	0	0.3463
0.3	0	0.1625
0.3	0	0.1625
0.3	0	0.1625
0.3	0	0.1625
0.3	0	0.1625
0.2	0	0.2419
0.2	0	0.2419
0.3	0	0.1625
6.5	0	2010.9
0.3	0	0.3463
0.2	0	0.2419
0.3	0	0.3463
0.2	0	0.2419

6.1	43
2.3	86
2.3	77
2.3	83
15.1	60
2.3	41
2.3	86
2.3	41
2.3	86
4.9	75
2.3	86
2.3	41
2.3	41
2.3	41
2.3	41
7.7	77
7.7	77
2.3	86
60.6	1832
4.9	75
7.7	77
4.9	75
7.7	77

-90.52601	30.05576	738514.3	3327544.1
-90.52097	30.05516	739001.8	3327488.1
-90.52421	30.05904	738680	3327911.5
-90.52235	30.05568	738867.5	3327542.9
-90.52275	30.05533	738829.7	3327503.2
-90.52131	30.05613	738966.7	3327594.9
-90.52314	30.05727	738787.5	3327717.5
-90.52131	30.05613	738966.7	3327594.9
-90.52097	30.05516	739001.8	3327488.1
-90.52283	30.05538	738821.9	3327508.6
-90.52097	30.05516	739001.8	3327488.1
-90.52131	30.05613	738966.7	3327594.9
-90.52131	30.05613	738966.7	3327594.9
-90.52131	30.05613	738966.7	3327594.9
-90.52131	30.05613	738966.7	3327594.9
-90.52435	30.05898	738666.7	3327904.5
-90.52435	30.05898	738666.7	3327904.5
-90.5227	30.05519	738834.9	3327487.8
-90.52531	30.05714	738578.5	3327698.6
-90.52283	30.05538	738821.9	3327508.6
-90.52435	30.05898	738666.7	3327904.5
-90.52283	30.05538	738821.9	3327508.6
-90.52435	30.05898	738666.7	3327904.5

15	50 06	Routine
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15	50 06	Routine

Toluene	00108-88-3	143 lb	0.0715
Hydrochloric acid	07647-01-0	513 lb	0.2565
Chloroprene	00126-99-8	7 lb	0.0035
Chloroprene	00126-99-8	4 lb	0.002
Toluene	00108-88-3	0.15 lb	0.000075
1,3-Butadiene	00106-99-0	20 lb	0.01
Chloroprene	00126-99-8	3 lb	0.0015
Toluene	00108-88-3	26 lb	0.013
Chloroprene	00126-99-8	1 lb	0.0005
1,3-Butadiene	00106-99-0	0.01 lb	0.000005
Chloroprene	00126-99-8	1 lb	0.0005
Chloroprene	00126-99-8	1 lb	0.0005
Chloroprene	00126-99-8	1 lb	0.0005
Chloroprene	00126-99-8	1 lb	0.0005
Chloroprene	00126-99-8	1 lb	0.0005
Chloroprene	00126-99-8	1 lb	0.0005
Chloroprene	00126-99-8	1 lb	0.0005
Toluene	00108-88-3	128 lb	0.064
1,3-Butadiene	00106-99-0	0.01 lb	0.000005
1,3-Butadiene	00106-99-0	0.01 lb	0.000005
Chloroprene	00126-99-8	1 lb	0.0005
1,3-Butadiene	00106-99-0	0.01 lb	0.000005
Chloroprene	00126-99-8	1 lb	0.0005

2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
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2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)

Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
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Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869

St. John the Baptist	MON010		Topper Column
St. John the Baptist	NEO154		Unstripped Emulsion Storage Tank No. 13 (Surge Control Vessel)
St. John the Baptist	MON011		Refiner Column
St. John the Baptist	NEO155		Unstripped Emulsion Storage Tank No. 14 (Surge Control Vessel)
St. John the Baptist	MON012		Recovery Column
St. John the Baptist	NEO171	12	No. 1 CD Solution Tank (Surge Control Vessel)
St. John the Baptist	NEO172	77	Inhibitor Final Make-Up Tank (Surge Control Vessel)
St. John the Baptist	MON067	56	Monomer Flare
St. John the Baptist	MON067	56	Monomer Flare
St. John the Baptist	NEO173		Inhibitor Hold-Up Tank (Surge Control Vessel)
St. John the Baptist	HCLFUG	93	Fugitive Emissions
St. John the Baptist	HCLFUG	93	Fugitive Emissions
St. John the Baptist	HCLFUG	93	Fugitive Emissions
St. John the Baptist	NEO175	13	No. 2 CD Solution Tank (Surge Control Vessel)
St. John the Baptist	HCLFUG	93	Fugitive Emissions
St. John the Baptist	HCLFUG	93	Fugitive Emissions
St. John the Baptist	HCLFUG	93	Fugitive Emissions
St. John the Baptist	HCLFUG	93	Fugitive Emissions
St. John the Baptist	HCLFUG	93	Fugitive Emissions
St. John the Baptist	HCLFUG	93	Fugitive Emissions
St. John the Baptist	MONFUG	58	Chloroprene Unit - Fugitive Emissions
St. John the Baptist	MONFUG	58	Chloroprene Unit - Fugitive Emissions
St. John the Baptist	NEO176	15	Recovered CD Storage Tank No. 1 (Surge Control Vessel)

EQT00000000010	Distillation unit	3000-V5	1110-2.4	Active	30102625
EQT00000000154	Above ground storage vessel	2249-V7	1700-5.7	Active	30102699
EQT00000000011	Distillation unit	3000-V5	1110-2.5	Active	30102625
EQT00000000155	Above ground storage vessel	2249-V7	1700-5.8	Active	30102699
EQT00000000012	Distillation unit	3000-V5	1110-2.6	Active	30102625
EQT00000000171	Above ground storage vessel	2249-V7	1700-63.1	Active	30102699
EQT00000000172	Above ground storage vessel	2249-V7	1700-63.10	Active	30102699
EQT00000000067	Flare	3000-V5	7000-10A	Active	30102625
EQT00000000067	Flare	3000-V5	7000-10A	Active	30102625
EQT00000000173	Above ground storage vessel	2249-V7	1700-63.11	Active	30102699
FUG00000000003	Fugitive Emissions	206-V2	3-96	Active	30102699
FUG00000000003	Fugitive Emissions	206-V2	3-96	Active	30102699
FUG00000000003	Fugitive Emissions	206-V2	3-96	Active	30102699
EQT00000000175	Above ground storage vessel	2249-V7	1700-63.2	Active	30102699
FUG00000000003	Fugitive Emissions	206-V2	3-96	Active	30102699
FUG00000000003	Fugitive Emissions	206-V2	3-96	Active	30102699
FUG00000000003	Fugitive Emissions	206-V2	3-96	Active	30102699
FUG00000000003	Fugitive Emissions	206-V2	3-96	Active	30102699
FUG00000000003	Fugitive Emissions	206-V2	3-96	Active	30102699
FUG00000000003	Fugitive Emissions	206-V2	3-96	Active	30102699
FUG00000000001	Fugitive Emissions	3000-V5	3-91	Active	30102625
FUG00000000001	Fugitive Emissions	3000-V5	3-91	Active	30102625
EQT00000000176	Above ground storage vessel	2249-V7	1700-63.3	Active	30102699

RP0006	1110-2 JET VENT SCRUBBER	Stack	98
RPG008	1700-5 EMUL STORAGE TANKS 4,5,6,7, & 8	Vent	55
RP0006	1110-2 JET VENT SCRUBBER	Stack	98
RPG008	1700-5 EMUL STORAGE TANKS 4,5,6,7, & 8	Vent	55
RP0006	1110-2 JET VENT SCRUBBER	Stack	98
RPG010	1700-63 1712 COMMON VENT HEADER	Stack	33
RPG010	1700-63 1712 COMMON VENT HEADER	Stack	33
RP0067	7000-10A FLARE STACK	Stack	129
RP0067	7000-10A FLARE STACK	Stack	129
RPG010	1700-63 1712 COMMON VENT HEADER	Stack	33
RPF003	3-96 HCL UNIT FUGITIVE EMISSIONS	Fugitive	3
RPF003	3-96 HCL UNIT FUGITIVE EMISSIONS	Fugitive	3
RPF003	3-96 HCL UNIT FUGITIVE EMISSIONS	Fugitive	3
RPG010	1700-63 1712 COMMON VENT HEADER	Stack	33
RPF003	3-96 HCL UNIT FUGITIVE EMISSIONS	Fugitive	3
RPF003	3-96 HCL UNIT FUGITIVE EMISSIONS	Fugitive	3
RPF003	3-96 HCL UNIT FUGITIVE EMISSIONS	Fugitive	3
RPF003	3-96 HCL UNIT FUGITIVE EMISSIONS	Fugitive	3
RPF003	3-96 HCL UNIT FUGITIVE EMISSIONS	Fugitive	3
RPF003	3-96 HCL UNIT FUGITIVE EMISSIONS	Fugitive	3
RPF001	3-91 FUGITIVE EMISSIONS CHLOROPRENE UNIT	Fugitive	3
RPF001	3-91 FUGITIVE EMISSIONS CHLOROPRENE UNIT	Fugitive	3
RPG010	1700-63 1712 COMMON VENT HEADER	Stack	33

0.3			0	0.3463
0.2			0	0.2419
0.3			0	0.3463
0.2			0	0.2419
0.3			0	0.3463
0.1			0	0.0534
0.1			0	0.0534
6.5			0	2010.9
6.5			0	2010.9
0.1			0	0.0534
	5000	5000	0	0
	5000	5000	0	0
	5000	5000	0	0
0.1			0	0.0534
	5000	5000	0	0
	5000	5000	0	0
	5000	5000	0	0
	5000	5000	0	0
	5000	5000	0	0
	5000	5000	0	0
	5000	5000	0	0
	5000	5000	0	0
0.1			0	0.0534

4.9	75
7.7	77
4.9	75
7.7	77
4.9	75
6.8	41
6.8	41
60.6	1832
60.6	1832
6.8	41
	80
	80
	80
6.8	41
	80
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	80
	80
	80
	80
	80
	80
6.8	41

-90.52283	30.05538	738821.9	3327508.6
-90.52435	30.05898	738666.7	3327904.5
-90.52283	30.05538	738821.9	3327508.6
-90.52435	30.05898	738666.7	3327904.5
-90.52283	30.05538	738821.9	3327508.6
-90.52446	30.0581	738658.2	3327806.8
-90.52446	30.0581	738658.2	3327806.8
-90.52531	30.05714	738578.5	3327698.6
-90.52531	30.05714	738578.5	3327698.6
-90.52446	30.0581	738658.2	3327806.8
-90.52565	30.0568	738546.5	3327660.2
-90.52565	30.0568	738546.5	3327660.2
-90.52565	30.0568	738546.5	3327660.2
-90.52446	30.0581	738658.2	3327806.8
-90.52565	30.0568	738546.5	3327660.2
-90.52565	30.0568	738546.5	3327660.2
-90.52565	30.0568	738546.5	3327660.2
-90.52565	30.0568	738546.5	3327660.2
-90.52565	30.0568	738546.5	3327660.2
-90.52565	30.0568	738546.5	3327660.2
-90.5229	30.05534	738815.2	3327504
-90.5229	30.05534	738815.2	3327504
-90.52446	30.0581	738658.2	3327806.8

15	50 06	Routine
15	50 06	Routine
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15	50 06	Routine
15	50 06	Routine

1,3-Butadiene	00106-99-0	0.01 lb	0.000005
Chloroprene	00126-99-8	1 lb	0.0005
1,3-Butadiene	00106-99-0	0.01 lb	0.000005
Chloroprene	00126-99-8	1 lb	0.0005
1,3-Butadiene	00106-99-0	0.01 lb	0.000005
Chloroprene	00126-99-8	1 lb	0.0005
Chloroprene	00126-99-8	1 lb	0.0005
Hydrochloric acid	07647-01-0	41 lb	0.0205
1,3-Butadiene	00106-99-0	2155 lb	1.0775
Chloroprene	00126-99-8	1 lb	0.0005
1,3-Butadiene	00106-99-0	205.4 lb	0.1027
Benzyl chloride	00100-44-7	5.3 lb	0.00265
Chlorine	07782-50-5	0 lb	0
Chloroprene	00126-99-8	1 lb	0.0005
Dichloromethane	00075-09-2	13.4 lb	0.0067
Glycol ethers (Table 51.1)	00109-86-4	0.9 lb	0.00045
Hydrochloric acid	07647-01-0	174 lb	0.087
Tetrachloroethylene	00127-18-4	1.1 lb	0.00055
Toluene	00108-88-3	1958 lb	0.979
Xylene (mixed isomers)	01330-20-7	13.4 lb	0.0067
1,3-Butadiene	00106-99-0	1045 lb	0.5225
Chlorine	07782-50-5	614 lb	0.307
Chloroprene	00126-99-8	1 lb	0.0005

2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)

Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
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Laplace	LA	70068	325212	2869
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Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869

St. John the Baptist	MONFUG	58	Chloroprene Unit - Fugitive Emissions
St. John the Baptist	MONFUG	58	Chloroprene Unit - Fugitive Emissions
St. John the Baptist	MONFUG	58	Chloroprene Unit - Fugitive Emissions
St. John the Baptist	NEO177		Recovered CD Storage Tank No. 2 (Surge Control Vessel)
St. John the Baptist	NEOFUG	35	Fugitive Emissions - Neoprene Unit
St. John the Baptist	NEOFUG	35	Fugitive Emissions - Neoprene Unit
St. John the Baptist	NEOFUG	35	Fugitive Emissions - Neoprene Unit
St. John the Baptist	NEOFUG	35	Fugitive Emissions - Neoprene Unit
St. John the Baptist	NEO178	16	CD Heels Tank (Bottom Receiver)
St. John the Baptist	HCLC17		HCL UNIT CONDITION XVII
St. John the Baptist	HCLC17		HCL UNIT CONDITION XVII
St. John the Baptist	NEO181		Crude CD Storage Tank No. 3
St. John the Baptist	MONC17		CHLOROPRENE UNIT CONDITION XVII
St. John the Baptist	NEO182	32	Refined CD Storage Tank
St. John the Baptist	NEOC17		NEOPRENE UNIT CONDITION XVII
St. John the Baptist	NEOC17		NEOPRENE UNIT CONDITION XVII
St. John the Baptist	NEO189		Stripped Emulsion Tank No. 11
St. John the Baptist	HCL086	62	HCl Recovery Unit
St. John the Baptist	NEO190		Stripped Emulsion Tank No. 12
St. John the Baptist	HCL086	62	HCl Recovery Unit
St. John the Baptist	NEO191		Stripped Emulsion Tank No. 15
St. John the Baptist	HCL097	75	Waste Loading Vent
St. John the Baptist	MON072		Mole Sieve Vent

FUG00000000001	Fugitive Emissions	3000-V5	3-91	Active	30102625
FUG00000000001	Fugitive Emissions	3000-V5	3-91	Active	30102625
FUG00000000001	Fugitive Emissions	3000-V5	3-91	Active	30102625
EQT00000000177	Above ground storage vessel	2249-V7	1700-63.4	Active	30102699
FUG00000000004	Fugitive Emissions	2249-V7	1-93	Active	30102699
FUG00000000004	Fugitive Emissions	2249-V7	1-93	Active	30102699
FUG00000000004	Fugitive Emissions	2249-V7	1-93	Active	30102699
FUG00000000004	Fugitive Emissions	2249-V7	1-93	Active	30102699
EQT00000000178	Above ground storage vessel	2249-V7	1700-63.5	Active	30102699
EMS00000000001	GC XVII Emissions	206-V2		Active	30102699
EMS00000000001	GC XVII Emissions	206-V2		Active	30102699
EQT00000000181	Above ground storage vessel	2249-V7	1700-63.8	Active	30102699
EMS00000000003	GC XVII Emissions	3000-V5		Active	30102625
EQT00000000182	Above ground storage vessel	2249-V7	1700-63.9	Active	30102699
EMS00000000005	GC XVII Emissions	2249-V7		Active	30102699
EMS00000000005	GC XVII Emissions	2249-V7		Active	30102699
EQT00000000189	Above ground storage vessel	2249-V7	1700-70	Active	30102699
EQT00000000086	Other	206-V2	7000-15	Active	30102699
EQT00000000190	Above ground storage vessel	2249-V7	1700-71	Active	30102699
EQT00000000086	Other	206-V2	7000-15	Active	30102699
EQT00000000191	Above ground storage vessel	2249-V7	1700-72	Active	30102699
EQT00000000097	Other	206-V2	1-96	Active	30102699
EQT00000000072	Other	3000-V5	7000-10A.5	Active	30102625

RPF001	3-91 FUGITIVE EMISSIONS CHLOROPRENE UNIT	Fugitive	3
RPF001	3-91 FUGITIVE EMISSIONS CHLOROPRENE UNIT	Fugitive	3
RPF001	3-91 FUGITIVE EMISSIONS CHLOROPRENE UNIT	Fugitive	3
RPG010	1700-63 1712 COMMON VENT HEADER	Stack	33
RPF004	1-93 FUGITIVE EMISSIONS NEOPRENE UNIT	Fugitive	3
RPF004	1-93 FUGITIVE EMISSIONS NEOPRENE UNIT	Fugitive	3
RPF004	1-93 FUGITIVE EMISSIONS NEOPRENE UNIT	Fugitive	3
RPF004	1-93 FUGITIVE EMISSIONS NEOPRENE UNIT	Fugitive	3
RPG010	1700-63 1712 COMMON VENT HEADER	Stack	33
RPHC17	HCL UNI GC XVII	Area	3
RPHC17	HCL UNI GC XVII	Area	3
RPG010	1700-63 1712 COMMON VENT HEADER	Stack	33
RPMC17	CHLOROPRENE UNIT GC XVII	Area	3
RPG010	1700-63 1712 COMMON VENT HEADER	Stack	33
RPNC17	NEOPRENE UNIT GC XVII	Area	3
RPNC17	NEOPRENE UNIT GC XVII	Area	3
RP0189	1700-70 STRIPPED EMULSION TANK # 11	Vent	38
RP0086	7000-15 HCL RECOVERY UNIT	Stack	120
RP0190	1700-71 STRIPPED EMULSION TANK # 12	Vent	38
RP0086	7000-15 HCL RECOVERY UNIT	Stack	120
RP0191	1700-72 STRIPPED EMULSION TANK # 15	Vent	38
RP0097	1-96 WASTE LOADING VENT	Stack	43.5
RP0067	7000-10A FLARE STACK	Stack	129

	5000	5000	0	0
	5000	5000	0	0
	5000	5000	0	0
0.1			0	0.0534
	5000	5000	0	0
	5000	5000	0	0
	5000	5000	0	0
	5000	5000	0	0
0.1			0	0.0534
	1000	1000	0	
	1000	1000	0	
0.1			0	0.0534
	1000	1000	0	
0.1			0	0.0534
	1000	1000	0	
	1000	1000	0	
0.3			0	0.1625
1.5			0	79.5
0.3			0	0.1625
1.5			0	79.5
0.3			0	0.1625
0.2			0	0.2
6.5			0	2010.9

	80
	80
	80
6.8	41
	80
	80
	80
	80
6.8	41
6.8	41
6.8	41
2.3	77
45	110
2.3	77
45	110
2.3	77
6.1	86
60.6	1832

-90.5229	30.05534	738815.2	3327504
-90.5229	30.05534	738815.2	3327504
-90.5229	30.05534	738815.2	3327504
-90.52446	30.0581	738658.2	3327806.8
-90.52424	30.05876	738677.8	3327880.4
-90.52424	30.05876	738677.8	3327880.4
-90.52424	30.05876	738677.8	3327880.4
-90.52424	30.05876	738677.8	3327880.4
-90.52446	30.0581	738658.2	3327806.8
-90.52573	30.0567	738539.1	3327648.9
-90.52573	30.0567	738539.1	3327648.9
-90.52446	30.0581	738658.2	3327806.8
-90.52326	30.05517	738780.9	3327484.4
-90.52446	30.0581	738658.2	3327806.8
-90.52422	30.05877	738679.7	3327881.5
-90.52422	30.05877	738679.7	3327881.5
-90.52415	30.05906	738685.8	3327913.8
-90.52579	30.05681	738533	3327661
-90.52412	30.05904	738688.7	3327911.7
-90.52579	30.05681	738533	3327661
-90.52409	30.059	738691.7	3327907.3
-90.52613	30.05587	738502.5	3327556.1
-90.52531	30.05714	738578.5	3327698.6

15	50 06	Routine
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15	50 06	Routine
15	50 06	Routine
15	50 06	Routine

Glycol ethers (Table 51.1)	00109-86-4	51 lb	0.0255
Hydrochloric acid	07647-01-0	614 lb	0.307
Toluene	00108-88-3	253 lb	0.1265
Chloroprene	00126-99-8	1 lb	0.0005
Dichloromethane	00075-09-2	62 lb	0.031
Tetrachloroethylene	00127-18-4	204 lb	0.102
Toluene	00108-88-3	129 lb	0.0645
Xylene (mixed isomers)	01330-20-7	1 lb	0.0005
Chloroprene	00126-99-8	1 lb	0.0005
Hydrochloric acid	07647-01-0	101.7 lb	0.05085
Toluene	00108-88-3	101.7 lb	0.05085
Chloroprene	00126-99-8	1 lb	0.0005
Toluene	00108-88-3	1072 lb	0.536
Chloroprene	00126-99-8	1 lb	0.0005
Glycol ethers (Table 51.1)	00109-86-4	175 lb	0.0875
Toluene	00108-88-3	1594 lb	0.797
Chloroprene	00126-99-8	1 lb	0.0005
Chlorine	07782-50-5	2520 lb	1.26
Chloroprene	00126-99-8	1 lb	0.0005
Hydrochloric acid	07647-01-0	9812 lb	4.906
Chloroprene	00126-99-8	1 lb	0.0005
Toluene	00108-88-3	2 lb	0.001
1,3-Butadiene	00106-99-0	0.01 lb	0.000005

2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)

Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
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Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869

St. John the Baptist	MON073		Mole Sieve Regeneration Gas
St. John the Baptist	MON114		ACR Process Vent
St. John the Baptist	NEO192		Stripped Emulsion Tank No. 16
St. John the Baptist	NEO135	11	Poly Kettles Manholes / Strainers (1 & 2) Common Vent
St. John the Baptist	MON013	42	DCB Storage Tanks Condenser
St. John the Baptist	NEO136	76	Poly Kettles Manholes / Strainers (3, 4, & 5) Common Vent
St. John the Baptist	MON018		Isom JVC Effluent Tank
St. John the Baptist	NEO139	17	CD Refining Column Jet
St. John the Baptist	MON019		TEA Storage Tank
St. John the Baptist	NEO140	18	CD Refining Column Jet (Spare)
St. John the Baptist	MON020		TEA Burette
St. John the Baptist	NEO142	24	East Wash Belt Dryer
St. John the Baptist	MON022		Catalyst Feed Tank
St. John the Baptist	NEO143	25	West Wash Belt Dryer
St. John the Baptist	MON023		Isom Purge Tank
St. John the Baptist	NEO144	26	East Hot Dryer Exhaust
St. John the Baptist	MON024		Isom Distillation Column
St. John the Baptist	NEO145	27	West Hot Dryer Exhaust
St. John the Baptist	MON021		Catalyst Mix Tank
St. John the Baptist	NEO146	28	No. 1 East Dryer Cooling Compartment
St. John the Baptist	NEO147	29	No. 1 West Dryer Cooling Compartment
St. John the Baptist	NEO148	30	No. 2 East Dryer Cooling Compartment
St. John the Baptist	NEO149	31	No. 2 West Dryer Cooling Compartment

EQT00000000073	Other	3000-V5	7000-10A.6	Active	30102625
EQT00000000114	Other	3000-V5	1110-26	Active	30102699
EQT00000000192	Above ground storage vessel	2249-V7	1700-73	Active	30102699
EQT00000000135	Other	2249-V7	1700-13	Active	30102699
EQT00000000013	Condenser	3000-V5	1110-2A	Active	30102625
EQT00000000136	Other	2249-V7	1700-13A	Active	30102699
EQT00000000018	Container	3000-V5	1110-3A	Active	30102625
EQT00000000139	Other	2249-V7	1700-20	Active	30102699
EQT00000000019	Container	3000-V5	1110-3B	Active	30102625
EQT00000000140	Other	2249-V7	1700-20A	Active	30102699
EQT00000000020	Container	3000-V5	1110-3C	Active	30102625
EQT00000000142	Other	2249-V7	1700-25	Active	30102699
EQT00000000022	Container	3000-V5	1110-3E	Active	30102625
EQT00000000143	Other	2249-V7	1700-26	Active	30102699
EQT00000000023	Container	3000-V5	1110-3F	Active	30102625
EQT00000000144	Other	2249-V7	1700-27	Active	30102699
EQT00000000024	Distillation unit	3000-V5	1110-3H	Active	30102625
EQT00000000145	Other	2249-V7	1700-28	Active	30102699
EQT00000000021	Mixer	3000-V5	1110-3D	Active	30102625
EQT00000000146	Other	2249-V7	1700-45	Active	30102699
EQT00000000147	Other	2249-V7	1700-46	Active	30102699
EQT00000000148	Other	2249-V7	1700-47	Active	30102699
EQT00000000149	Other	2249-V7	1700-48	Active	30102699

RP0067	7000-10A FLARE STACK	Stack	129
RP0114	1110-26 ACR PROCESS VENT	Vent	120
RP0192	1700-73 STRIPPED EMULSION TANK # 16	Vent	38
RP0135	1700-13 POLYKETTLE MANHOLE	Vent	58.2
RP0013	1110-2A DCB STORAGE TANK VENTS (1031)	Vent	23.5
RP0136	1700-13A LPK MH/STRAINERS (3,4 & 5)	Vent	59
RP0017	1110-3 ISOM REACTOR VENT	Stack	58.4
RP0139	1700-20 CD REFINING COLUMN JETS	Stack	63.5
RP0017	1110-3 ISOM REACTOR VENT	Stack	58.4
RP0140	1700-20A CD REFINING COLUMN JET SPARE	Stack	63.4
RP0017	1110-3 ISOM REACTOR VENT	Stack	58.4
RP0142	1700-25 EAST WASH BELT DRYER	Stack	31
RP0017	1110-3 ISOM REACTOR VENT	Stack	58.4
RP0143	1700-26 WEST WASH BELT DRYER	Stack	31
RP0017	1110-3 ISOM REACTOR VENT	Stack	58.4
RP0144	1700-27 EAST HOT DRYER	Stack	65.5
RP0017	1110-3 ISOM REACTOR VENT	Stack	58.4
RP0145	1700-28 WEST HOT DRYER	Stack	65.5
RP0017	1110-3 ISOM REACTOR VENT	Stack	58.4
RP0146	1700-45 #1 EAST COOLING COMPARTMENT	Stack	49.6
RP0147	1700-46 #1 WEST COOLING COMPARTMENT	Stack	49.6
RP0148	1700-47 #2 EAST COOLING COMPARTMENT	Stack	49.6
RP0149	1700-48 #2 WEST COOLING COMPARTMENT	Stack	49.6

6.5	0	2010.9
0.5	0	0.2
0.3	0	0.1625
1.3	0	115
0.3	0	0.1625
2	0	141.7
0.2	0	0.1288
0.2	0	0.1099
0.2	0	0.1288
0.2	0	0.1099
0.2	0	0.1288
14.1	0	2841.8
0.2	0	0.1288
14.1	0	2841.8
0.2	0	0.1288
3	0	476.7
0.2	0	0.1288
3	0	476.7
0.2	0	0.1288
2.7	0	344.2
2.7	0	344.2
2.7	0	344.2
2.7	0	344.2

60.6	1832
1	84
2.3	77
82.4	77
2.3	86
45.1	77
4.1	86
3.5	65
4.1	86
3.5	65
4.1	86
18.2	104
4.1	86
18.2	104
4.1	86
67.4	250
4.1	86
67.4	250
4.1	86
61.6	122
61.6	122
61.6	122
61.6	122

-90.52531	30.05714	738578.5	3327698.6
-90.52298	30.05512	738808.1	3327479.5
-90.52408	30.05897	738692.7	3327904
-90.52452	30.05898	738650.3	3327904.2
-90.52097	30.05516	739001.8	3327488.1
-90.52453	30.05903	738649.2	3327909.7
-90.52342	30.05556	738764.6	3327527.3
-90.52437	30.05821	738666.6	3327819.1
-90.52342	30.05556	738764.6	3327527.3
-90.52432	30.05821	738671.4	3327819.2
-90.52342	30.05556	738764.6	3327527.3
-90.52458	30.05944	738643.4	3327955.1
-90.52342	30.05556	738764.6	3327527.3
-90.52467	30.05941	738634.8	3327951.5
-90.52342	30.05556	738764.6	3327527.3
-90.52459	30.05943	738642.4	3327953.9
-90.52342	30.05556	738764.6	3327527.3
-90.52464	30.05942	738637.6	3327952.7
-90.52342	30.05556	738764.6	3327527.3
-90.52465	30.05964	738636.1	3327977.1
-90.52469	30.05963	738632.3	3327975.9
-90.52481	30.05959	738620.8	3327971.2
-90.52476	30.05961	738625.6	3327973.5

15	50 06	Routine
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1,3-Butadiene	00106-99-0	0.01 lb	0.000005
Hydrochloric acid	07647-01-0	5 lb	0.0025
Chloroprene	00126-99-8	1 lb	0.0005
Toluene	00108-88-3	887 lb	0.4435
Chloroprene	00126-99-8	1 lb	0.0005
Toluene	00108-88-3	1092 lb	0.546
Chloroprene	00126-99-8	1 lb	0.0005
Toluene	00108-88-3	3 lb	0.0015
Chloroprene	00126-99-8	1 lb	0.0005
Toluene	00108-88-3	3 lb	0.0015
Chloroprene	00126-99-8	1 lb	0.0005
Toluene	00108-88-3	769 lb	0.3845
Chloroprene	00126-99-8	1 lb	0.0005
Toluene	00108-88-3	769 lb	0.3845
Chloroprene	00126-99-8	1 lb	0.0005
Toluene	00108-88-3	3891 lb	1.9455
Chloroprene	00126-99-8	1 lb	0.0005
Toluene	00108-88-3	3891 lb	1.9455
Chloroprene	00126-99-8	1 lb	0.0005
Chloroprene	00126-99-8	1 lb	0.0005
Chloroprene	00126-99-8	1 lb	0.0005
Chloroprene	00126-99-8	1 lb	0.0005
Chloroprene	00126-99-8	1 lb	0.0005

2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)

Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
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Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869

St. John the Baptist	NEO167	10	No. 6 Emulsion Storage Tank Manhole
St. John the Baptist	MON025		Isom Reactors
St. John the Baptist	NEO185	91	Poly Building Wall Fans
St. John the Baptist	NEO222		Large Poly Kettle Vent No. 1
St. John the Baptist	NEO230		No. 10 Emulsion Storage Tank Manway
St. John the Baptist	NEO223		Large Poly Kettle Vent No. 2
St. John the Baptist	NEO231		No. 13 Emulsion Storage Tank Manway
St. John the Baptist	NEO224		Large Poly Kettle Vent No. 3
St. John the Baptist	NEO232		No. 14 Emulsion Storage Tank Manway
St. John the Baptist	NEO225		Large Poly Kettle Vent No. 4
St. John the Baptist	NEOG10	88	Vent Header System
St. John the Baptist	NEO226		Large Poly Kettle Vent No. 5
St. John the Baptist	NEOR13		Stabilizer & Catalyst Tanks Manholes Vent
St. John the Baptist	NEOR14		Strippers Condenser Vent
St. John the Baptist	NEO202	36	Diversion Tank (Waste Water Tank)
St. John the Baptist	NEOR14		Strippers Condenser Vent
St. John the Baptist	HCL088		No. 1 HCl Unit Feed Tank
St. John the Baptist	NEOR15		Poly Kettles Vent Condenser
St. John the Baptist	HCL089		No. 2 HCl Unit Feed Tank
St. John the Baptist	NEOR16	81	No. 6, 7, 8, 10, 13, & 14 Unstripped Storage Tanks Depressure Vent (Surge Control Vessels)
St. John the Baptist	NEOR18		ACR Refining Vent
St. John the Baptist	NEOR19		ACR Drumming Vent
St. John the Baptist	NEOR19		ACR Drumming Vent

EQT00000000167	Other	2249-V7	1700-5A	Active	30102699
EQT00000000025	Reactor vessel	3000-V5	1110-3I	Active	30102625
EQT00000000185	Other	2249-V7	1700-66	Active	30102699
EQT00000000222	Reactor vessel	2249-V7	1700-3A	Active	30102699
EQT00000000230	Other	2249-V7	1700-87	Active	30102699
EQT00000000223	Reactor vessel	2249-V7	1700-3B	Active	30102699
EQT00000000231	Other	2249-V7	1700-88	Active	30102699
EQT00000000224	Reactor vessel	2249-V7	1700-3C	Active	30102699
EQT00000000232	Other	2249-V7	1700-89	Active	30102699
EQT00000000225	Reactor vessel	2249-V7	1700-3D	Active	30102699
Not Listed	Other	2249-V7	1700-63	Active	30102699
EQT00000000226	Reactor vessel	2249-V7	1700-3E	Active	30102699
RLP00000000013	Other	2249-V7	1700-14B.3	Active	30102699
RLP00000000014	Other	2249-V7	1700-2	Active	30102699
EQT00000000202	Wastewater Treatment System	2249-V7	3-95	Active	30102699
RLP00000000014	Other	2249-V7	1700-2	Active	30102699
EQT00000000088	Above ground storage vessel	206-V2	7000-17.1	Active	30102699
RLP00000000015	Other	2249-V7	1700-3	Active	30102699
EQT00000000089	Above ground storage vessel	206-V2	7000-17.2	Active	30102699
RLP00000000016	Other	2249-V7	1700-56	Active	30102699
RLP00000000018	Other	2249-V7	1700-81	Active	30102699
RLP00000000019	Other	2249-V7	1700-83	Active	30102699
RLP00000000019	Other	2249-V7	1700-83	Active	30102699

RP0167	1700-5A NO. 6 EMUL STORAGE TANK MANHOLE	Vent	53.8
RP0017	1110-3 ISOM REACTOR VENT	Stack	58.4
RP0185	1700-66 BUILDING EXHAUST FAN	Area	3
RPN015	1700-3 POLY KETTLES COMMON VENT	Stack	62.4
RPN230	No. 10 Emulsion Storage Tank Manway	Vent	55
RPN015	1700-3 POLY KETTLES COMMON VENT	Stack	62.4
RPN231	No. 13 Emulsion Storage Tank Manway	Vent	55
RPN015	1700-3 POLY KETTLES COMMON VENT	Stack	62.4
RPN232	No. 14 Emulsion Storage Tank Manway	Vent	55
RPN015	1700-3 POLY KETTLES COMMON VENT	Stack	62.4
RPG010	1700-63 1712 COMMON VENT HEADER	Stack	33
RPN015	1700-3 POLY KETTLES COMMON VENT	Stack	62.4
RPG006	1700-14B SOLUITON MAKE UP	Stack	57
RPN014	1700-2 STRIPPERS COMMON VENT	Stack	62.4
RP0202	3-95 DIVERSION TANK	Area	3
RPN014	1700-2 STRIPPERS COMMON VENT	Stack	62.4
RP0087	7000-17 HCL FEED TANKS	Vent	10
RPN015	1700-3 POLY KETTLES COMMON VENT	Stack	62.4
RP0087	7000-17 HCL FEED TANKS	Vent	10
RPN016	1700-56 UNSTRIPPED TANKS DEPRESS. VENT	Stack	55
RPN018	1700-81 - ACR Refining Vent	Vent	70.2
RPN019	1700-83 - ACR Drumming Vent	Vent	15
RPN019	1700-83 - ACR Drumming Vent	Vent	15

1.3			0	123.3
0.2			0	0.1288
	500	500	0	7939.4
0.3			0	0.3
0.17			0	1.4
0.3			0	0.3
0.17			0	1.4
0.3			0	0.3
0.17			0	1.4
0.3			0	0.3
0.1			0	0.0534
0.3			0	0.3
1.5			0	185
0.3			0	0.1
	60	60	0	0
0.3			0	0.1
0.2			0	0.1445
0.3			0	0.3
0.2			0	0.1445
0.2			0	18.8
0.3			0	0.1625
1			0	2
1			0	2

88.3	77
4.1	86
	77
4.2	34
60	77
4.2	34
60	77
4.2	34
60	77
4.2	34
6.8	41
4.2	34
104.7	77
1.4	30
	77
1.4	30
4.6	86
4.2	34
4.6	86
600	77
2.3	82
2.6	75
2.6	75

-90.52434	30.05897	738667.7	3327903.5
-90.52342	30.05556	738764.6	3327527.3
-90.52407	30.05902	738693.6	3327909.6
-90.52449	30.05899	738653.1	3327905.4
-90.52427	30.05902	738674.3	3327909.1
-90.52449	30.05899	738653.1	3327905.4
-90.52428	30.05901	738673.3	3327908
-90.52449	30.05899	738653.1	3327905.4
-90.52426	30.05902	738675.2	3327909.2
-90.52449	30.05899	738653.1	3327905.4
-90.52446	30.0581	738658.2	3327806.8
-90.52449	30.05899	738653.1	3327905.4
-90.52443	30.05886	738659.2	3327891.1
-90.52451	30.05903	738651.1	3327909.8
-90.52562	30.06033	738541	3328051.6
-90.52451	30.05903	738651.1	3327909.8
-90.52553	30.05669	738558.4	3327648.2
-90.52449	30.05899	738653.1	3327905.4
-90.52553	30.05669	738558.4	3327648.2
-90.52429	30.05901	738672.4	3327908
-90.52439	30.05876	738663.3	3327880.1
-90.52462	30.05787	738643.3	3327780.9
-90.52462	30.05787	738643.3	3327780.9

15	50 06	Routine
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15	50 06	Routine

Toluene	00108-88-3	262 lb	0.131
Chloroprene	00126-99-8	1 lb	0.0005
Toluene	00108-88-3	10385 lb	5.1925
Chloroprene	00126-99-8	1 lb	0.0005
Toluene	00108-88-3	261 lb	0.1305
Chloroprene	00126-99-8	1 lb	0.0005
Toluene	00108-88-3	56 lb	0.028
Chloroprene	00126-99-8	1 lb	0.0005
Toluene	00108-88-3	56 lb	0.028
Chloroprene	00126-99-8	1 lb	0.0005
Toluene	00108-88-3	7 lb	0.0035
Chloroprene	00126-99-8	1 lb	0.0005
Toluene	00108-88-3	240 lb	0.12
Ammonia	07664-41-7	7651 lb	3.8255
Chloroprene	00126-99-8	0.22 lb	0.00011
Toluene	00108-88-3	17 lb	0.0085
Chloroprene	00126-99-8	0.01 lb	0.000005
Toluene	00108-88-3	319 lb	0.1595
Chloroprene	00126-99-8	0.01 lb	0.000005
Toluene	00108-88-3	596 lb	0.298
Hydrochloric acid	07647-01-0	1400 lb	0.7
Dichloromethane	00075-09-2	17 lb	0.0085
Tetrachloroethylene	00127-18-4	2 lb	0.001

2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
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2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
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2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)

Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
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Laplace	LA	70068	325212	2869
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Laplace	LA	70068	325212	2869
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Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869

St. John the Baptist	NEOR19		ACR Drumming Vent
St. John the Baptist	MON017	44	Isom Reactor Vent System
St. John the Baptist	HCL091		No. 1 Waste Organic Tank
St. John the Baptist	MON017	44	Isom Reactor Vent System
St. John the Baptist	HCL092		No. 2 Waste Organic Tank
St. John the Baptist	MON109		ACR Chlorinator
St. John the Baptist	MON109		ACR Chlorinator
St. John the Baptist	HCL093		No. 3 Waste Organic Tank
St. John the Baptist	NEO222		Large Poly Kettle Vent No. 1
St. John the Baptist	HCL094		No. 4 Waste Organic Tank
St. John the Baptist	NEO223		Large Poly Kettle Vent No. 2
St. John the Baptist	HCL095		No. 5 Waste Organic Tank
St. John the Baptist	NEO224		Large Poly Kettle Vent No. 3
St. John the Baptist	HCL096		Decant Tank
St. John the Baptist	NEO225		Large Poly Kettle Vent No. 4
St. John the Baptist	MON007		JVC Effluent Tank
St. John the Baptist	NEO226		Large Poly Kettle Vent No. 5
St. John the Baptist	HCL082	60	HCl Product Tanks' Scrubber
St. John the Baptist	MON008		Pentane Column
St. John the Baptist	HCL087	63	HCl Feed Tanks' Scrubber
St. John the Baptist	MON006	41	Refining Jets Vent System
St. John the Baptist	MON006	41	Refining Jets Vent System
St. John the Baptist	MON009		Heads Column

RLP00000000019	Other	2249-V7	1700-83	Active	30102699
EQT00000000017	Reactor vessel	3000-V5	1110-3	Active	30102625
EQT00000000091	Above ground storage vessel	206-V2	2-74.1	Active	30102699
EQT00000000017	Reactor vessel	3000-V5	1110-3	Active	30102625
EQT00000000092	Above ground storage vessel	206-V2	2-74.2	Active	30102699
EQT00000000109	Reactor vessel	3000-V5	1110-26H	Active	30102699
EQT00000000109	Reactor vessel	3000-V5	1110-26H	Active	30102699
EQT00000000093	Above ground storage vessel	206-V2	2-74.3	Active	30102699
EQT00000000222	Reactor vessel	2249-V7	1700-3A	Active	30102699
EQT00000000094	Above ground storage vessel	206-V2	2-74.4	Active	30102699
EQT00000000223	Reactor vessel	2249-V7	1700-3B	Active	30102699
EQT00000000095	Above ground storage vessel	206-V2	2-74.5	Active	30102699
EQT00000000224	Reactor vessel	2249-V7	1700-3C	Active	30102699
EQT00000000096	Container	206-V2	2-74.6	Active	30102699
EQT00000000225	Reactor vessel	2249-V7	1700-3D	Active	30102699
EQT00000000007	Container	3000-V5	1110-2.1	Active	30102625
EQT00000000226	Reactor vessel	2249-V7	1700-3E	Active	30102699
EQT00000000082	Scrubber	206-V2	1180-21	Active	30102699
EQT00000000008	Distillation unit	3000-V5	1110-2.2	Active	30102625
EQT00000000087	Scrubber	206-V2	7000-17	Active	30102699
EQT00000000006	Scrubber	3000-V5	1110-2	Active	30102625
EQT00000000006	Scrubber	3000-V5	1110-2	Active	30102625
EQT00000000009	Distillation unit	3000-V5	1110-2.3	Active	30102625

RPN019	1700-83 - ACR Drumming Vent	Vent	15
RP0017	1110-3 ISOM REACTOR VENT	Stack	58.4
RP0090	2-74 WASTE STORAGE TANKS	Vent	43.5
RP0017	1110-3 ISOM REACTOR VENT	Stack	58.4
RP0090	2-74 WASTE STORAGE TANKS	Vent	43.5
RP0114	1110-26 ACR PROCESS VENT	Vent	120
RP0114	1110-26 ACR PROCESS VENT	Vent	120
RP0090	2-74 WASTE STORAGE TANKS	Vent	43.5
RPN015	1700-3 POLY KETTLES COMMON VENT	Stack	62.4
RP0090	2-74 WASTE STORAGE TANKS	Vent	43.5
RPN015	1700-3 POLY KETTLES COMMON VENT	Stack	62.4
RP0090	2-74 WASTE STORAGE TANKS	Vent	43.5
RPN015	1700-3 POLY KETTLES COMMON VENT	Stack	62.4
RP0090	2-74 WASTE STORAGE TANKS	Vent	43.5
RPN015	1700-3 POLY KETTLES COMMON VENT	Stack	62.4
RP0006	1110-2 JET VENT SCRUBBER	Stack	98
RPN015	1700-3 POLY KETTLES COMMON VENT	Stack	62.4
RP0082	1180-21 HCL STORAGE	Vent	25
RP0006	1110-2 JET VENT SCRUBBER	Stack	98
RP0087	7000-17 HCL FEED TANKS	Vent	10
RP0006	1110-2 JET VENT SCRUBBER	Stack	98
RP0006	1110-2 JET VENT SCRUBBER	Stack	98
RP0006	1110-2 JET VENT SCRUBBER	Stack	98

1	0	2
0.2	0	0.1288
0.2	0	0.2
0.2	0	0.1288
0.2	0	0.2
0.5	0	0.2
0.5	0	0.2
0.2	0	0.2
0.3	0	0.3
0.2	0	0.2
0.3	0	0.3
0.2	0	0.2
0.3	0	0.3
0.2	0	0.2
0.3	0	0.3
0.3	0	0.3463
0.3	0	0.3
0.3	0	0.1625
0.3	0	0.3463
0.2	0	0.1445
0.3	0	0.3463
0.3	0	0.3463
0.3	0	0.3463

2.6	75
4.1	86
6.1	43
4.1	86
6.1	43
1	84
1	84
6.1	43
4.2	34
6.1	43
4.2	34
6.1	43
4.2	34
6.1	43
4.2	34
4.9	75
4.2	34
2.3	86
4.9	75
4.6	86
4.9	75
4.9	75
4.9	75

-90.52462	30.05787	738643.3	3327780.9
-90.52342	30.05556	738764.6	3327527.3
-90.52601	30.05576	738514.3	3327544.1
-90.52342	30.05556	738764.6	3327527.3
-90.52601	30.05576	738514.3	3327544.1
-90.52298	30.05512	738808.1	3327479.5
-90.52298	30.05512	738808.1	3327479.5
-90.52601	30.05576	738514.3	3327544.1
-90.52449	30.05899	738653.1	3327905.4
-90.52601	30.05576	738514.3	3327544.1
-90.52449	30.05899	738653.1	3327905.4
-90.52601	30.05576	738514.3	3327544.1
-90.52449	30.05899	738653.1	3327905.4
-90.52601	30.05576	738514.3	3327544.1
-90.52449	30.05899	738653.1	3327905.4
-90.52283	30.05538	738821.9	3327508.6
-90.52449	30.05899	738653.1	3327905.4
-90.52144	30.05708	738951.9	3327700
-90.52283	30.05538	738821.9	3327508.6
-90.52553	30.05669	738558.4	3327648.2
-90.52283	30.05538	738821.9	3327508.6
-90.52283	30.05538	738821.9	3327508.6
-90.52283	30.05538	738821.9	3327508.6

15	50 06	Routine
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15	50 06	Routine
15	50 06	Routine

Xylene (mixed isomers)	01330-20-7	0.001 lb	0.0000005
Hydrochloric acid	07647-01-0	14 lb	0.007
Chloroprene	00126-99-8	0.01 lb	0.000005
Toluene	00108-88-3	124 lb	0.062
Chloroprene	00126-99-8	0.01 lb	0.000005
Chlorine	07782-50-5	5 lb	0.0025
Hydrochloric acid	07647-01-0	5 lb	0.0025
Chloroprene	00126-99-8	0.01 lb	0.000005
Toluene	00108-88-3	0.01 lb	0.000005
Chloroprene	00126-99-8	0.01 lb	0.000005
Toluene	00108-88-3	0.01 lb	0.000005
Chloroprene	00126-99-8	0.01 lb	0.000005
Toluene	00108-88-3	0.01 lb	0.000005
Chloroprene	00126-99-8	0.01 lb	0.000005
Toluene	00108-88-3	0.01 lb	0.000005
Chloroprene	00126-99-8	0.01 lb	0.000005
Toluene	00108-88-3	0.01 lb	0.000005
Hydrochloric acid	07647-01-0	88 lb	0.044
Chloroprene	00126-99-8	0.01 lb	0.000005
Toluene	00108-88-3	438 lb	0.219
Hydrochloric acid	07647-01-0	296 lb	0.148
1,3-Butadiene	00106-99-0	1855 lb	0.9275
Chloroprene	00126-99-8	0.01 lb	0.000005

2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
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2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)

Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
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Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869

St. John the Baptist	NEO219		Stripper No. 1
St. John the Baptist	MON010		Topper Column
St. John the Baptist	NEO219		Stripper No. 1
St. John the Baptist	NEO220		Stripper No. 2
St. John the Baptist	MON011		Refiner Column
St. John the Baptist	NEO220		Stripper No. 2
St. John the Baptist	NEO221		Stripper No. 3
St. John the Baptist	MON012		Recovery Column
St. John the Baptist	NEO221		Stripper No. 3
St. John the Baptist	NEO219		Stripper No. 1
St. John the Baptist	NEO202	36	Diversion Tank (Waste Water Tank)
St. John the Baptist	NEO220		Stripper No. 2
St. John the Baptist	NEO203	37	Surge Tank (Waste Water Tank)
St. John the Baptist	NEO221		Stripper No. 3
St. John the Baptist	NEO204	38	Aeration Tank (Waste Water Tank)
St. John the Baptist	HCL088		No. 1 HCl Unit Feed Tank
St. John the Baptist	HCL089		No. 2 HCl Unit Feed Tank
St. John the Baptist	HCL091		No. 1 Waste Organic Tank
St. John the Baptist	HCL092		No. 2 Waste Organic Tank
St. John the Baptist	HCL093		No. 3 Waste Organic Tank
St. John the Baptist	HCL094		No. 4 Waste Organic Tank
St. John the Baptist	HCL095		No. 5 Waste Organic Tank
St. John the Baptist	MON003	40	Inhibitor Make-up and Feed Tanks

EQT00000000219	Steam stripper	2249-V7	1700-2A	Active	30102699
EQT00000000010	Distillation unit	3000-V5	1110-2.4	Active	30102625
EQT00000000219	Steam stripper	2249-V7	1700-2A	Active	30102699
EQT00000000220	Steam stripper	2249-V7	1700-2B	Active	30102699
EQT00000000011	Distillation unit	3000-V5	1110-2.5	Active	30102625
EQT00000000220	Steam stripper	2249-V7	1700-2B	Active	30102699
EQT00000000221	Steam stripper	2249-V7	1700-2C	Active	30102699
EQT00000000012	Distillation unit	3000-V5	1110-2.6	Active	30102625
EQT00000000221	Steam stripper	2249-V7	1700-2C	Active	30102699
EQT00000000219	Steam stripper	2249-V7	1700-2A	Active	30102699
EQT00000000202	Wastewater Treatment System	2249-V7	3-95	Active	30102699
EQT00000000220	Steam stripper	2249-V7	1700-2B	Active	30102699
EQT00000000203	Wastewater Treatment System	2249-V7	4-95	Active	30102699
EQT00000000221	Steam stripper	2249-V7	1700-2C	Active	30102699
EQT00000000204	Wastewater Treatment System	2249-V7	5-95	Active	30102699
EQT00000000088	Above ground storage vessel	206-V2	7000-17.1	Active	30102699
EQT00000000089	Above ground storage vessel	206-V2	7000-17.2	Active	30102699
EQT00000000091	Above ground storage vessel	206-V2	2-74.1	Active	30102699
EQT00000000092	Above ground storage vessel	206-V2	2-74.2	Active	30102699
EQT00000000093	Above ground storage vessel	206-V2	2-74.3	Active	30102699
EQT00000000094	Above ground storage vessel	206-V2	2-74.4	Active	30102699
EQT00000000095	Above ground storage vessel	206-V2	2-74.5	Active	30102699
EQT00000000003	Above ground storage vessel	3000-V5	1110-1B	Active	30102625

RPN014	1700-2 STRIPPERS COMMON VENT	Stack	62.4
RP0006	1110-2 JET VENT SCRUBBER	Stack	98
RPN014	1700-2 STRIPPERS COMMON VENT	Stack	62.4
RPN014	1700-2 STRIPPERS COMMON VENT	Stack	62.4
RP0006	1110-2 JET VENT SCRUBBER	Stack	98
RPN014	1700-2 STRIPPERS COMMON VENT	Stack	62.4
RPN014	1700-2 STRIPPERS COMMON VENT	Stack	62.4
RP0006	1110-2 JET VENT SCRUBBER	Stack	98
RPN014	1700-2 STRIPPERS COMMON VENT	Stack	62.4
RPN014	1700-2 STRIPPERS COMMON VENT	Stack	62.4
RP0202	3-95 DIVERSION TANK	Area	3
RPN014	1700-2 STRIPPERS COMMON VENT	Stack	62.4
RP0203	4-95 NO. 1 AERATION TANK	Area	3
RPN014	1700-2 STRIPPERS COMMON VENT	Stack	62.4
RP0204	5-95 NO. 2 AERATION TANK	Area	3
RP0087	7000-17 HCL FEED TANKS	Vent	10
RP0087	7000-17 HCL FEED TANKS	Vent	10
RP0090	2-74 WASTE STORAGE TANKS	Vent	43.5
RP0090	2-74 WASTE STORAGE TANKS	Vent	43.5
RP0090	2-74 WASTE STORAGE TANKS	Vent	43.5
RP0090	2-74 WASTE STORAGE TANKS	Vent	43.5
RP0090	2-74 WASTE STORAGE TANKS	Vent	43.5
RP0003	1110-1B INHIBITOR MAKE UP TANK	Vent	65.6

0.3			0	0.1
0.3			0	0.3463
0.3			0	0.1
0.3			0	0.1
0.3			0	0.3463
0.3			0	0.1
0.3			0	0.1
0.3			0	0.3463
0.3			0	0.1
0.3			0	0.1
	60	60	0	0
0.3			0	0.1
	60	60	0	0
0.3			0	0.1
	60	60	0	0
0.2			0	0.1445
0.2			0	0.1445
0.2			0	0.2
0.2			0	0.2
0.2			0	0.2
0.2			0	0.2
0.2			0	0.2
0.3			0	0.1625

1.4	30
4.9	75
1.4	30
1.4	30
4.9	75
1.4	30
1.4	30
4.9	75
1.4	30
1.4	30
	77
1.4	30
	77
1.4	30
	77
4.6	86
4.6	86
6.1	43
6.1	43
6.1	43
6.1	43
6.1	43
2.3	77

-90.52451	30.05903	738651.1	3327909.8
-90.52283	30.05538	738821.9	3327508.6
-90.52451	30.05903	738651.1	3327909.8
-90.52451	30.05903	738651.1	3327909.8
-90.52283	30.05538	738821.9	3327508.6
-90.52451	30.05903	738651.1	3327909.8
-90.52451	30.05903	738651.1	3327909.8
-90.52283	30.05538	738821.9	3327508.6
-90.52451	30.05903	738651.1	3327909.8
-90.52451	30.05903	738651.1	3327909.8
-90.52562	30.06033	738541	3328051.6
-90.52451	30.05903	738651.1	3327909.8
-90.52578	30.06027	738525.7	3328044.6
-90.52451	30.05903	738651.1	3327909.8
-90.52549	30.05976	738554.9	3327988.6
-90.52553	30.05669	738558.4	3327648.2
-90.52553	30.05669	738558.4	3327648.2
-90.52601	30.05576	738514.3	3327544.1
-90.52601	30.05576	738514.3	3327544.1
-90.52601	30.05576	738514.3	3327544.1
-90.52601	30.05576	738514.3	3327544.1
-90.52601	30.05576	738514.3	3327544.1
-90.52262	30.05518	738842.6	3327486.9

15	50 06	Routine
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15	50 06	Routine
15	50 06	Routine
15	50 06	Routine
15	50 06	Routine
15	50 06	Routine
15	50 06	Routine

Ammonia	07664-41-7	0.01 lb	0.000005
Chloroprene	00126-99-8	0.01 lb	0.000005
Toluene	00108-88-3	0.01 lb	0.000005
Ammonia	07664-41-7	0.01 lb	0.000005
Chloroprene	00126-99-8	0.01 lb	0.000005
Toluene	00108-88-3	0.01 lb	0.000005
Ammonia	07664-41-7	0.01 lb	0.000005
Chloroprene	00126-99-8	0.01 lb	0.000005
Toluene	00108-88-3	0.01 lb	0.000005
Chloroprene	00126-99-8	0.01 lb	0.000005
Toluene	00108-88-3	0.01 lb	0.000005
Chloroprene	00126-99-8	0.01 lb	0.000005
Toluene	00108-88-3	123 lb	0.0615
Chloroprene	00126-99-8	0.01 lb	0.000005
Toluene	00108-88-3	0.01 lb	0.000005
VOC, Total		0.0005 tons	0.0005
VOC, Total		0.0005 tons	0.0005
VOC, Total		0.0005 tons	0.0005
VOC, Total		0.0005 tons	0.0005
VOC, Total		0.0005 tons	0.0005
VOC, Total		0.0005 tons	0.0005
VOC, Total		0.0005 tons	0.0005
VOC, Total		0.013 tons	0.013

2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)

Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
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Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869

St. John the Baptist	MON004		Inhibitor Make-up Tank
St. John the Baptist	MON005		Inhibitor Feed Tank
St. John the Baptist	MON014		DCB Storage Tank No. 1
St. John the Baptist	MON015		DCB Storage Tank No. 2
St. John the Baptist	MON016	43	Emergency Inhibitor Make-up Tank
St. John the Baptist	MON028	47	Emergency Inhibitor Feed Tank
St. John the Baptist	MON029	48	Toluene Storage Tank
St. John the Baptist	MON046	71	1117-1 DCB Storage Tanks Vent
St. John the Baptist	MON054	72	Cellosolve Storage Tank
St. John the Baptist	MON055	73	CD Catalyst Tank
St. John the Baptist	MON060		Diversion Tank
St. John the Baptist	MON061		Aqueous Clarifier Tank
St. John the Baptist	MON062		No.1 CD Brine Tank
St. John the Baptist	MON063		No.2 CD Brine Tank
St. John the Baptist	MON064	53	Emergency Aqueous Tank
St. John the Baptist	MON068		Diluent Tank
St. John the Baptist	MON069		Pentane Tank
St. John the Baptist	MON070		NMP Storage Tank
St. John the Baptist	MON098		PTZ/NMP Tanks
St. John the Baptist	MON099		NMP/PTZ Make-up Tank
St. John the Baptist	MON100		PTZ/NMP Make-up Tank Manhole
St. John the Baptist	MON101		NMP/PTZ Storage Tank
St. John the Baptist	MON110		MD Heels Decanter

EQT00000000004	Above ground storage vessel	3000-V5	1110-1B.1	Active	30102625
EQT00000000005	Above ground storage vessel	3000-V5	1110-B.2	Active	30102625
EQT00000000014	Above ground storage vessel	3000-V5	1110-2A.1	Active	30102625
EQT00000000015	Above ground storage vessel	3000-V5	1110-2A.2	Active	30102625
EQT00000000016	Above ground storage vessel	3000-V5	1110-2B	Active	30102625
EQT00000000028	Above ground storage vessel	3000-V5	1110-5B	Active	30102625
EQT00000000029	Above ground storage vessel	3000-V5	1110-9	Active	30102625
EQT00000000046	Above ground storage vessel	3000-V5	1117-1	Active	30102625
EQT00000000054	Above ground storage vessel	3000-V5	1117-2	Active	30102625
EQT00000000055	Above ground storage vessel	3000-V5	1117-3	Active	30102625
EQT00000000060	Above ground storage vessel	3000-V5	1140-20A	Active	30102625
EQT00000000061	Above ground storage vessel	3000-V5	1140-20B	Active	30102625
EQT00000000062	Above ground storage vessel	3000-V5	1140-20C	Active	30102625
EQT00000000063	Above ground storage vessel	3000-V5	1140-20D	Active	30102625
EQT00000000064	Above ground storage vessel	3000-V5	1150-25	Active	30102625
EQT00000000068	Above ground storage vessel	3000-V5	7000-10A.1	Active	30102625
EQT00000000069	Above ground storage vessel	3000-V5	7000-10A.2	Active	30102625
EQT00000000070	Above ground storage vessel	3000-V5	7000-10A.3	Active	30102625
EQT00000000098	Above ground storage vessel	3000-V5	1110-25	Active	30102699
EQT00000000099	Above ground storage vessel	3000-V5	1110-25A	Active	30102699
EQT00000000100	Above ground storage vessel	3000-V5	1110-25A.1	Active	30102699
EQT00000000101	Above ground storage vessel	3000-V5	1110-25B	Active	30102699
EQT00000000110	Above ground storage vessel	3000-V5	1110-26I	Active	30102699

RP0003	1110-1B INHIBITOR MAKE UP TANK	Vent	65.6
RP0003	1110-1B INHIBITOR MAKE UP TANK	Vent	65.6
RP0013	1110-2A DCB STORAGE TANK VENTS (1031)	Vent	23.5
RP0013	1110-2A DCB STORAGE TANK VENTS (1031)	Vent	23.5
RP0016	1110-2B EMERGENCY INHIBITOR MAKE UP TANK	Vent	65.6
RP0028	1110-5B INHIBITOR FEED TANK	Vent	5
RP0029	1110-9 TOLUENE STORAGE TANK	Vent	27.9
RP0046	1117-1 DCB STORAGE TANKS VENT	Vent	50
RP0054	1117-2 CELLOSOLVE STORAGE TANK	Vent	25
RP0055	1117-3 CD CATALYST TANK	Vent	30
RP0059	1140-20 AQUEOUS STORAGE VENT CONDENSER	Stack	53.1
RP0059	1140-20 AQUEOUS STORAGE VENT CONDENSER	Stack	53.1
RP0059	1140-20 AQUEOUS STORAGE VENT CONDENSER	Stack	53.1
RP0059	1140-20 AQUEOUS STORAGE VENT CONDENSER	Stack	53.1
RP0064	1150-25 EMERGENCY AQUEOUS TANK	Vent	30.1
RP0067	7000-10A FLARE STACK	Stack	129
RP0067	7000-10A FLARE STACK	Stack	129
RP0067	7000-10A FLARE STACK	Stack	129
RP0098	1110-25 NMP/PTZ TANKS	Vent	120
RP0098	1110-25 NMP/PTZ TANKS	Vent	120
RP0100	1110-25A.1 NMP/PTZ MAKE-UP TANK MANHOLE	Vent	25
RP0098	1110-25 NMP/PTZ TANKS	Vent	120
RP0114	1110-26 ACR PROCESS VENT	Vent	120

0.3	0	0.1625
0.3	0	0.1625
0.3	0	0.1625
0.3	0	0.1625
0.3	0	0.1625
0.3	0	0.1625
0.3	0	0.1625
0.3	0	0.1625
0.5	0	0.2
0.3	0	0.1625
0.3	0	0.1625
0.3	0	0.1625
0.3	0	0.1625
0.3	0	0.1625
0.3	0	0.1625
6.5	0	2010.9
6.5	0	2010.9
6.5	0	2010.9
0.3	0	0.1625
0.3	0	0.1625
0.3	0	0.1625
0.3	0	0.1625
0.5	0	0.2

2.3	77
2.3	77
2.3	86
2.3	86
2.3	77
2.3	77
2.3	86
2.3	83
1	77
2.3	77
2.3	41
2.3	41
2.3	41
2.3	41
2.3	86
60.6	1832
60.6	1832
60.6	1832
2.3	75
2.3	75
2.3	75
2.3	75
1	84

-90.52262	30.05518	738842.6	3327486.9
-90.52262	30.05518	738842.6	3327486.9
-90.52097	30.05516	739001.8	3327488.1
-90.52097	30.05516	739001.8	3327488.1
-90.52278	30.05527	738827	3327496.5
-90.52278	30.05521	738827.1	3327489.9
-90.52234	30.05547	738868.9	3327519.6
-90.52235	30.05568	738867.5	3327542.9
-90.5222	30.05556	738882.2	3327529.9
-90.5222	30.05553	738882.3	3327526.6
-90.52131	30.05613	738966.7	3327594.9
-90.52131	30.05613	738966.7	3327594.9
-90.52131	30.05613	738966.7	3327594.9
-90.52131	30.05613	738966.7	3327594.9
-90.52314	30.05727	738787.5	3327717.5
-90.52531	30.05714	738578.5	3327698.6
-90.52531	30.05714	738578.5	3327698.6
-90.52531	30.05714	738578.5	3327698.6
-90.52216	30.05536	738886.6	3327507.8
-90.52216	30.05536	738886.6	3327507.8
-90.52222	30.05534	738880.8	3327505.5
-90.52216	30.05536	738886.6	3327507.8
-90.52298	30.05512	738808.1	3327479.5

15	50 06	Routine
15	50 06	Routine
15	50 06	Routine
15	50 06	Routine
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15	50 06	Routine

VOC, Total	0.0005 tons	0.0005
VOC, Total	0.0005 tons	0.0005
VOC, Total	0.0005 tons	0.0005
VOC, Total	0.0005 tons	0.0005
VOC, Total	0.011 tons	0.011
VOC, Total	0.001 tons	0.001
VOC, Total	0.28 tons	0.28
VOC, Total	0.003 tons	0.003
VOC, Total	0.001 tons	0.001
VOC, Total	0.0005 tons	0.0005
VOC, Total	0.0005 tons	0.0005
VOC, Total	0.0005 tons	0.0005
VOC, Total	0.0005 tons	0.0005
VOC, Total	0.0005 tons	0.0005
VOC, Total	0.001 tons	0.001
VOC, Total	0.0005 tons	0.0005
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VOC, Total	0.0005 tons	0.0005
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VOC, Total	0.001 tons	0.001
VOC, Total	0.001 tons	0.001
VOC, Total	0.001 tons	0.001

2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)

Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
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Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869

St. John the Baptist	MON111		Crude ACR Decanter
St. John the Baptist	MON113		Chlorinated ACR Transfer Tank
St. John the Baptist	NEO134	01	No. 7, 8, 10, 13, 14 Emulsion Storage Tks Manhole & Exhaust Blower
St. John the Baptist	NEO138		Acetic Acid Hold-Up Tank
St. John the Baptist	NEO141	20	2MM Pound CD Storage Tank
St. John the Baptist	NEO150		Unstripped Emulsion Storage Tank No. 6 (Surge Control Vessel)
St. John the Baptist	NEO151		Unstripped Emulsion Storage Tank No. 7 (Surge Control Vessel)
St. John the Baptist	NEO152		Unstripped Emulsion Storage Tank No. 8 (Surge Control Vessel)
St. John the Baptist	NEO153		Unstripped Emulsion Storage Tank No. 10 (Surge Control Vessel)
St. John the Baptist	NEO154		Unstripped Emulsion Storage Tank No. 13 (Surge Control Vessel)
St. John the Baptist	NEO155		Unstripped Emulsion Storage Tank No. 14 (Surge Control Vessel)
St. John the Baptist	NEO156		Stabilizer Tank No. 1 (Surge Control Vessel)
St. John the Baptist	NEO157		Stabilizer Tank No. 2 (Surge Control Vessel)
St. John the Baptist	NEO158		Stabilizer Tank No. 3 (Surge Control Vessel)
St. John the Baptist	NEO159		Stabilizer Tank No. 4 (Surge Control Vessel)
St. John the Baptist	NEO160		Stabilizer Tank No. 5 (Surge Control Vessel)
St. John the Baptist	NEO161		Stabilizer Tank - LD750 (Surge Control Vessel)
St. John the Baptist	NEO162	34	Inhibitor Mix Tank (Surge Control Vessel)
St. John the Baptist	NEO163	78	Stripped Emulsion Tank No. 1
St. John the Baptist	NEO164	79	Stripped Emulsion Tank No. 2
St. John the Baptist	NEO165	80	Stripped Emulsion Tank No. 3
St. John the Baptist	NEO166	82	Diisobutylene (DIB) Storage Tank
St. John the Baptist	NEO171	12	No. 1 CD Solution Tank (Surge Control Vessel)

EQT00000000111	Above ground storage vessel	3000-V5	1110-26J	Active	30102699
EQT00000000113	Above ground storage vessel	3000-V5	1110-26L	Active	30102699
EQT00000000134	Above ground storage vessel	2249-V7	1700-1	Active	30102699
EQT00000000138	Above ground storage vessel	2249-V7	1700-14B.2	Active	30102699
EQT00000000141	Above ground storage vessel	2249-V7	1700-21A	Active	30102699
EQT00000000150	Above ground storage vessel	2249-V7	1700-5.3	Active	30102699
EQT00000000151	Above ground storage vessel	2249-V7	1700-5.4	Active	30102699
EQT00000000152	Above ground storage vessel	2249-V7	1700-5.5	Active	30102699
EQT00000000153	Above ground storage vessel	2249-V7	1700-5.6	Active	30102699
EQT00000000154	Above ground storage vessel	2249-V7	1700-5.7	Active	30102699
EQT00000000155	Above ground storage vessel	2249-V7	1700-5.8	Active	30102699
EQT00000000156	Above ground storage vessel	2249-V7	1700-50.1	Active	30102699
EQT00000000157	Above ground storage vessel	2249-V7	1700-50.2	Active	30102699
EQT00000000158	Above ground storage vessel	2249-V7	1700-50.3	Active	30102699
EQT00000000159	Above ground storage vessel	2249-V7	1700-50.4	Active	30102699
EQT00000000160	Above ground storage vessel	2249-V7	1700-50.5	Active	30102699
EQT00000000161	Above ground storage vessel	2249-V7	1700-50.6	Active	30102699
EQT00000000162	Above ground storage vessel	2249-V7	1700-51	Active	30102699
EQT00000000163	Above ground storage vessel	2249-V7	1700-53	Active	30102699
EQT00000000164	Above ground storage vessel	2249-V7	1700-54	Active	30102699
EQT00000000165	Above ground storage vessel	2249-V7	1700-55	Active	30102699
EQT00000000166	Above ground storage vessel	2249-V7	1700-57	Active	30102699
EQT00000000171	Above ground storage vessel	2249-V7	1700-63.1	Active	30102699

RP0114	1110-26 ACR PROCESS VENT	Vent	120
RP0114	1110-26 ACR PROCESS VENT	Vent	120
RP0134	1700-1 NO. 7 & 8 EMULSION MANHOLES	Vent	53.8
RPG006	1700-14B SOLUITON MAKE UP	Stack	57
RP0141	1700-21A 2MMLB CD STORAGE TANK	Vent	48.2
RPG008	1700-5 EMUL STORAGE TANKS 4,5,6,7, & 8	Vent	55
RPG008	1700-5 EMUL STORAGE TANKS 4,5,6,7, & 8	Vent	55
RPG008	1700-5 EMUL STORAGE TANKS 4,5,6,7, & 8	Vent	55
RPG008	1700-5 EMUL STORAGE TANKS 4,5,6,7, & 8	Vent	55
RPG008	1700-5 EMUL STORAGE TANKS 4,5,6,7, & 8	Vent	55
RPG008	1700-5 EMUL STORAGE TANKS 4,5,6,7, & 8	Vent	55
RPG009	1700-50 STABILIZER TANKS	Stack	54
RPG009	1700-50 STABILIZER TANKS	Stack	54
RPG009	1700-50 STABILIZER TANKS	Stack	54
RPG009	1700-50 STABILIZER TANKS	Stack	54
RPG009	1700-50 STABILIZER TANKS	Stack	54
RPG009	1700-50 STABILIZER TANKS	Stack	54
RP0162	1700-51 INHIBITOR MIX TANK	Vent	59
RP0163	1700-53 STRIPPED EMULSION TANK #1	Vent	38
RP0164	1700-54 STRIPPED EMULSION TANK #2	Vent	38
RP0165	1700-55 STRIPPED EMULSION TANK #3	Vent	38
RP0166	1700-57 DIB TANK	Vent	10
RPG010	1700-63 1712 COMMON VENT HEADER	Stack	33

0.5	0	0.2
0.5	0	0.2
1.2	0	38.5
1.5	0	185
0.3	0	0.1625
0.2	0	0.2419
0.2	0	0.2419
0.2	0	0.2419
0.2	0	0.2419
0.2	0	0.2419
0.2	0	0.2419
0.2	0	0.1696
0.2	0	0.1696
0.2	0	0.1696
0.2	0	0.1696
0.2	0	0.1696
0.2	0	0.1696
0.3	0	0.1625
0.3	0	0.1625
0.3	0	0.1625
0.3	0	0.1625
0.3	0	0.1625
0.1	0	0.0534

1	84
1	84
34	77
104.7	77
2.3	30
7.7	77
7.7	77
7.7	77
7.7	77
7.7	77
7.7	77
5.4	77
5.4	77
5.4	77
5.4	77
5.4	77
5.4	77
2.3	37
2.3	77
2.3	77
2.3	77
2.3	82
6.8	41

-90.52298	30.05512	738808.1	3327479.5
-90.52298	30.05512	738808.1	3327479.5
-90.52428	30.05902	738673.3	3327909.1
-90.52443	30.05886	738659.2	3327891.1
-90.52323	30.05748	738778.3	3327740.6
-90.52435	30.05898	738666.7	3327904.5
-90.52435	30.05898	738666.7	3327904.5
-90.52435	30.05898	738666.7	3327904.5
-90.52435	30.05898	738666.7	3327904.5
-90.52435	30.05898	738666.7	3327904.5
-90.52435	30.05898	738666.7	3327904.5
-90.52411	30.05862	738690.7	3327865.1
-90.52411	30.05862	738690.7	3327865.1
-90.52411	30.05862	738690.7	3327865.1
-90.52411	30.05862	738690.7	3327865.1
-90.52411	30.05862	738690.7	3327865.1
-90.52411	30.05862	738690.7	3327865.1
-90.52403	30.05862	738698.4	3327865.3
-90.52441	30.05897	738660.9	3327903.3
-90.52443	30.05896	738659	3327902.2
-90.52439	30.05899	738662.8	3327905.6
-90.52505	30.05931	738598.4	3327939.7
-90.52446	30.0581	738658.2	3327806.8

15	50 06	Routine
15	50 06	Routine
15	50 06	Routine
15	50 06	Routine
15	50 06	Routine
15	50 06	Routine
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15	50 06	Routine
15	50 06	Routine
15	50 06	Routine
15	50 06	Routine
15	50 06	Routine
15	50 06	Routine
15	50 06	Routine

VOC, Total	0.001 tons	0.001
VOC, Total	0.001 tons	0.001
VOC, Total	1.991 tons	1.991
VOC, Total	0.0005 tons	0.0005
VOC, Total	4.686 tons	4.686
VOC, Total	0.0005 tons	0.0005
VOC, Total	0.0005 tons	0.0005
VOC, Total	0.0005 tons	0.0005
VOC, Total	0.0005 tons	0.0005
VOC, Total	0.0005 tons	0.0005
VOC, Total	0.0005 tons	0.0005
VOC, Total	0.0005 tons	0.0005
VOC, Total	0.0005 tons	0.0005
VOC, Total	0.0005 tons	0.0005
VOC, Total	0.0005 tons	0.0005
VOC, Total	0.0005 tons	0.0005
VOC, Total	0.0005 tons	0.0005
VOC, Total	0.706 tons	0.706
VOC, Total	0.004 tons	0.004
VOC, Total	0.004 tons	0.004
VOC, Total	0.004 tons	0.004
VOC, Total	0.084 tons	0.084
VOC, Total	0.0005 tons	0.0005

2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)

Laplace	LA	70068	325212		2869
Laplace	LA	70068	325212		2869
Laplace	LA	70068	325212		2869
Laplace	LA	70068	325212		2869
Laplace	LA	70068	325212		2869
Laplace	LA	70068	325212		2869
Laplace	LA	70068	325212		2869
Laplace	LA	70068	325212		2869
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Laplace	LA	70068	325212		2869
Laplace	LA	70068	325212		2869
Laplace	LA	70068	325212		2869
Laplace	LA	70068	325212		2869
Laplace	LA	70068	325212		2869
Laplace	LA	70068	325212		2869

St. John the Baptist	NEO172	77	Inhibitor Final Make-Up Tank (Surge Control Vessel)
St. John the Baptist	NEO173		Inhibitor Hold-Up Tank (Surge Control Vessel)
St. John the Baptist	NEO175	13	No. 2 CD Solution Tank (Surge Control Vessel)
St. John the Baptist	NEO176	15	Recovered CD Storage Tank No. 1 (Surge Control Vessel)
St. John the Baptist	NEO177		Recovered CD Storage Tank No. 2 (Surge Control Vessel)
St. John the Baptist	NEO178	16	CD Heels Tank (Bottom Receiver)
St. John the Baptist	NEO181		Crude CD Storage Tank No. 3
St. John the Baptist	NEO182	32	Refined CD Storage Tank
St. John the Baptist	NEO183	89	Water Solution Exhaust Fan
St. John the Baptist	NEO186		Stripped Emulsion Tank No. 4
St. John the Baptist	NEO187		Stripped Emulsion Tank No. 5
St. John the Baptist	NEO188		Stripped Emulsion Tank No. 9
St. John the Baptist	NEO189		Stripped Emulsion Tank No. 11
St. John the Baptist	NEO190		Stripped Emulsion Tank No. 12
St. John the Baptist	NEO191		Stripped Emulsion Tank No. 15
St. John the Baptist	NEO192		Stripped Emulsion Tank No. 16
St. John the Baptist	NEO193		Finishing Stabilizer Makeup Bag Filter
St. John the Baptist	NEO194		Resin 90 Railcar
St. John the Baptist	NEO195		Rosin S Railcar
St. John the Baptist	NEO196		Octopol Storage Tank
St. John the Baptist	NEO198		Emergency Stabilizer Drumming
St. John the Baptist	NEO199		Refined ACR Storage Tank
St. John the Baptist	NEO200		Chlorinated ACR Storage Tank

EQT00000000172	Above ground storage vessel	2249-V7	1700-63.10	Active	30102699
EQT00000000173	Above ground storage vessel	2249-V7	1700-63.11	Active	30102699
EQT00000000175	Above ground storage vessel	2249-V7	1700-63.2	Active	30102699
EQT00000000176	Above ground storage vessel	2249-V7	1700-63.3	Active	30102699
EQT00000000177	Above ground storage vessel	2249-V7	1700-63.4	Active	30102699
EQT00000000178	Above ground storage vessel	2249-V7	1700-63.5	Active	30102699
EQT00000000181	Above ground storage vessel	2249-V7	1700-63.8	Active	30102699
EQT00000000182	Above ground storage vessel	2249-V7	1700-63.9	Active	30102699
EQT00000000183	Above ground storage vessel	2249-V7	1700-64	Active	30102699
EQT00000000186	Above ground storage vessel	2249-V7	1700-67	Active	30102699
EQT00000000187	Above ground storage vessel	2249-V7	1700-68	Active	30102699
EQT00000000188	Above ground storage vessel	2249-V7	1700-69	Active	30102699
EQT00000000189	Above ground storage vessel	2249-V7	1700-70	Active	30102699
EQT00000000190	Above ground storage vessel	2249-V7	1700-71	Active	30102699
EQT00000000191	Above ground storage vessel	2249-V7	1700-72	Active	30102699
EQT00000000192	Above ground storage vessel	2249-V7	1700-73	Active	30102699
EQT00000000193	Above ground storage vessel	2249-V7	1700-74	Active	30102699
EQT00000000194	Above ground storage vessel	2249-V7	1700-75	Active	30102699
EQT00000000195	Above ground storage vessel	2249-V7	1700-76	Active	30102699
EQT00000000196	Above ground storage vessel	2249-V7	1700-77	Active	30102699
EQT00000000198	Above ground storage vessel	2249-V7	1700-79	Active	30102699
EQT00000000199	Above ground storage vessel	2249-V7	1700-80.1	Active	30102699
EQT00000000200	Above ground storage vessel	2249-V7	1700-80.2	Active	30102699

RPG010	1700-63 1712 COMMON VENT HEADER	Stack	33
RPG010	1700-63 1712 COMMON VENT HEADER	Stack	33
RPG010	1700-63 1712 COMMON VENT HEADER	Stack	33
RPG010	1700-63 1712 COMMON VENT HEADER	Stack	33
RPG010	1700-63 1712 COMMON VENT HEADER	Stack	33
RPG010	1700-63 1712 COMMON VENT HEADER	Stack	33
RPG010	1700-63 1712 COMMON VENT HEADER	Stack	33
RPG010	1700-63 1712 COMMON VENT HEADER	Stack	33
RP0183	1700-64 WATER SOLUTION MH FAN	Vent	53.6
RP0186	1700-67 STRIPPED EMULSION TANK # 4	Vent	38
RP0187	1700-68 STRIPPED EMULSION TANK # 5	Vent	38
RP0188	1700-69 STRIPPED EMULSION TANK # 9	Vent	38
RP0189	1700-70 STRIPPED EMULSION TANK # 11	Vent	38
RP0190	1700-71 STRIPPED EMULSION TANK # 12	Vent	38
RP0191	1700-72 STRIPPED EMULSION TANK # 15	Vent	38
RP0192	1700-73 STRIPPED EMULSION TANK # 16	Vent	38
RP0193	1700-74 FINISHING STABILIZER MAKEUP BAG FILTER	Stack	25
RP0194	1700-75 RESIN 90 RAILCAR	Vent	4
RP0195	1700-76 ROSIN S RAILCAR	Vent	4
RP0196	1700-77 OCTOPOL TANK	Vent	4
RP0198	1700-79 EMERGENCY STABILIZER DRUMMING	Area	4
RPN017	1700-80 - ACR Storage Vent Header	Vent	50
RPN017	1700-80 - ACR Storage Vent Header	Vent	50

0.1			0	0.0534
0.1			0	0.0534
0.1			0	0.0534
0.1			0	0.0534
0.1			0	0.0534
0.1			0	0.0534
0.1			0	0.0534
0.1			0	0.0534
1.3			0	39.6
0.3			0	0.1625
0.3			0	0.1625
0.3			0	0.1625
0.3			0	0.1625
0.3			0	0.1625
0.3			0	0.1625
0.3			0	0.1625
0.7			0	11.5
0.3			0	0.1625
0.3			0	0.1625
0.3			0	0.1625
	200	200	0	
0.3			0	0.1625
0.3			0	0.1625

6.8	41
6.8	41
6.8	41
6.8	41
6.8	41
6.8	41
6.8	41
6.8	41
29.8	77
2.3	77
2.3	77
2.3	77
2.3	77
2.3	77
2.3	77
2.3	77
30	77
2.3	356
2.3	356
2.3	77
	77
2.3	30
2.3	30

-90.52446	30.0581	738658.2	3327806.8
-90.52446	30.0581	738658.2	3327806.8
-90.52446	30.0581	738658.2	3327806.8
-90.52446	30.0581	738658.2	3327806.8
-90.52446	30.0581	738658.2	3327806.8
-90.52446	30.0581	738658.2	3327806.8
-90.52446	30.0581	738658.2	3327806.8
-90.52446	30.0581	738658.2	3327806.8
-90.52421	30.05856	738681.2	3327858.3
-90.52439	30.05897	738662.8	3327903.4
-90.52435	30.05901	738666.6	3327907.9
-90.52421	30.05904	738680	3327911.5
-90.52415	30.05906	738685.8	3327913.8
-90.52412	30.05904	738688.7	3327911.7
-90.52409	30.059	738691.7	3327907.3
-90.52408	30.05897	738692.7	3327904
-90.52448	30.05915	738653.7	3327923.1
-90.52427	30.05993	738672.1	3328010
-90.52402	30.05956	738697.1	3327969.5
-90.52401	30.05854	738700.5	3327856.5
-90.52446	30.05916	738655.6	3327924.3
-90.52437	30.05889	738665	3327894.5
-90.52437	30.05889	738665	3327894.5

15	50 06	Routine
15	50 06	Routine
15	50 06	Routine
15	50 06	Routine
15	50 06	Routine
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15	50 06	Routine
15	50 06	Routine
15	50 06	Routine
15	50 06	Routine
15	50 06	Routine
15	50 06	Routine

VOC, Total	0.0005 tons	0.0005
VOC, Total	0.0005 tons	0.0005
VOC, Total	0.0005 tons	0.0005
VOC, Total	0.0005 tons	0.0005
VOC, Total	0.0005 tons	0.0005
VOC, Total	0.0005 tons	0.0005
VOC, Total	0.0005 tons	0.0005
VOC, Total	0.0005 tons	0.0005
VOC, Total	0.11 tons	0.11
VOC, Total	0.004 tons	0.004
VOC, Total	0.004 tons	0.004
VOC, Total	0.004 tons	0.004
VOC, Total	0.0005 tons	0.0005
VOC, Total	0.0005 tons	0.0005
VOC, Total	0.0005 tons	0.0005
VOC, Total	0.0005 tons	0.0005
VOC, Total	0.001 tons	0.001
VOC, Total	0.006 tons	0.006
VOC, Total	0.004 tons	0.004
VOC, Total	0.001 tons	0.001
VOC, Total	0.002 tons	0.002
VOC, Total	0.001 tons	0.001
VOC, Total	0.001 tons	0.001

2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)

Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
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Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869

St. John the Baptist	NEO201		ACR / Solvent Blend Tank
St. John the Baptist	NEO205		NMP/PTZ Tote
St. John the Baptist	NEO206		Aqueous Actrene Tote
St. John the Baptist	NEO207		Recovery Column Heels Tote
St. John the Baptist	NEO208		TBC Tote
St. John the Baptist	NEO212		Advance Fibres System (AFS) - Emulsion Shipping (Emulsion Blend Tank)
St. John the Baptist	NEO213		Advance Fibres System (AFS) - Emulsion Shipping (Tote Loading)
St. John the Baptist	NEOG08	09	Unstripped Emulsion Storage Tanks Common Vent
St. John the Baptist	NEOG09	33	Stabilizer Tanks Vent
St. John the Baptist	NEOR17		ACR Storage Common Vent Header (1700-80.1 & 80.2)
St. John the Baptist	HCL090	61	Waste Storage Tanks' Condenser
St. John the Baptist	MON013	42	DCB Storage Tanks Condenser
St. John the Baptist	MON026	45	CD Vent Condenser
St. John the Baptist	MON059	52	Aqueous Storage Vent Condenser
St. John the Baptist	MON104		MD Condenser
St. John the Baptist	NEO210		ACR RC Condenser
St. John the Baptist	HCL096		Decant Tank
St. John the Baptist	MON007		JVC Effluent Tank
St. John the Baptist	MON018		Isom JVC Effluent Tank
St. John the Baptist	MON019		TEA Storage Tank
St. John the Baptist	MON020		TEA Burette
St. John the Baptist	MON022		Catalyst Feed Tank
St. John the Baptist	MON023		Isom Purge Tank

EQT00000000201	Above ground storage vessel	2249-V7	1700-82	Active	30102699
EQT00000000205	Above ground storage vessel	2249-V7	1700-81.1	Active	30102699
EQT00000000206	Above ground storage vessel	2249-V7	1700-81.2	Active	30102699
EQT00000000207	Above ground storage vessel	2249-V7	1700-81.3	Active	30102699
EQT00000000208	Above ground storage vessel	2249-V7	1700-81.4	Active	30102699
EQT00000000212	Above ground storage vessel	2249-V7	1700-84A	Active	30102699
EQT00000000213	Above ground storage vessel	2249-V7	1700-84B	Active	30102699
Not Listed	Above ground storage vessel	2249-V7	1700-5	Active	30102699
Not Listed	Above ground storage vessel	2249-V7	1700-50	Active	30102699
RLP00000000017	Above ground storage vessel	2249-V7	1700-80	Active	30102699
EQT00000000090	Condenser	206-V2	2-74	Active	30102699
EQT00000000013	Condenser	3000-V5	1110-2A	Active	30102625
EQT00000000026	Condenser	3000-V5	1110-4	Active	30102625
EQT00000000059	Condenser	3000-V5	1140-20	Active	30102625
EQT00000000104	Condenser	3000-V5	1110-26C	Active	30102699
EQT00000000210	Condenser	2249-V7	1700-81.6	Active	30102699
EQT00000000096	Container	206-V2	2-74.6	Active	30102699
EQT00000000007	Container	3000-V5	1110-2.1	Active	30102625
EQT00000000018	Container	3000-V5	1110-3A	Active	30102625
EQT00000000019	Container	3000-V5	1110-3B	Active	30102625
EQT00000000020	Container	3000-V5	1110-3C	Active	30102625
EQT00000000022	Container	3000-V5	1110-3E	Active	30102625
EQT00000000023	Container	3000-V5	1110-3F	Active	30102625

RP0201	1700-82 - ACR / Solvent Blend Tank	Vent	30
RPN018	1700-81 - ACR Refining Vent	Vent	70.2
RPN018	1700-81 - ACR Refining Vent	Vent	70.2
RPN018	1700-81 - ACR Refining Vent	Vent	70.2
RPN018	1700-81 - ACR Refining Vent	Vent	70.2
RPN212	1700-84A AFS EMULSION BLEND TANK	Vent	20
RPN213	1700-84B AFS EMULSION TOTE	Vent	5
RPG008	1700-5 EMUL STORAGE TANKS 4,5,6,7, & 8	Vent	55
RPG009	1700-50 STABILIZER TANKS	Stack	54
RPN017	1700-80 - ACR Storage Vent Header	Vent	50
RP0090	2-74 WASTE STORAGE TANKS	Vent	43.5
RP0013	1110-2A DCB STORAGE TANK VENTS (1031)	Vent	23.5
RP0026	1110-4 CD VENT CONDENSER	Stack	72
RP0059	1140-20 AQUEOUS STORAGE VENT CONDENSER	Stack	53.1
RP0114	1110-26 ACR PROCESS VENT	Vent	120
RPN018	1700-81 - ACR Refining Vent	Vent	70.2
RP0090	2-74 WASTE STORAGE TANKS	Vent	43.5
RP0006	1110-2 JET VENT SCRUBBER	Stack	98
RP0017	1110-3 ISOM REACTOR VENT	Stack	58.4
RP0017	1110-3 ISOM REACTOR VENT	Stack	58.4
RP0017	1110-3 ISOM REACTOR VENT	Stack	58.4
RP0017	1110-3 ISOM REACTOR VENT	Stack	58.4
RP0017	1110-3 ISOM REACTOR VENT	Stack	58.4

0.3	0	0.1625
0.3	0	0.1625
0.3	0	0.1625
0.3	0	0.1625
0.3	0	0.1625
0.3	0	0.1625
0.3	0	0.1625
0.2	0	0.2419
0.2	0	0.1696
0.3	0	0.1625
0.2	0	0.2
0.3	0	0.1625
0.1	0	0.1185
0.3	0	0.1625
0.5	0	0.2
0.3	0	0.1625
0.2	0	0.2
0.3	0	0.3463
0.2	0	0.1288
0.2	0	0.1288
0.2	0	0.1288
0.2	0	0.1288
0.2	0	0.1288

2.3	30
2.3	82
2.3	82
2.3	82
2.3	82
2.3	30
2.3	30
7.7	77
5.4	77
2.3	30
6.1	43
2.3	86
15.1	60
2.3	41
1	84
2.3	82
6.1	43
4.9	75
4.1	86
4.1	86
4.1	86
4.1	86
4.1	86

-90.52438	30.05788	738666.4	3327782.5
-90.52439	30.05876	738663.3	3327880.1
-90.52439	30.05876	738663.3	3327880.1
-90.52439	30.05876	738663.3	3327880.1
-90.52439	30.05876	738663.3	3327880.1
-90.52456	30.05939	738645.4	3327949.6
-90.52449	30.05944	738652.1	3327955.2
-90.52435	30.05898	738666.7	3327904.5
-90.52411	30.05862	738690.7	3327865.1
-90.52437	30.05889	738665	3327894.5
-90.52601	30.05576	738514.3	3327544.1
-90.52097	30.05516	739001.8	3327488.1
-90.52275	30.05533	738829.7	3327503.2
-90.52131	30.05613	738966.7	3327594.9
-90.52298	30.05512	738808.1	3327479.5
-90.52439	30.05876	738663.3	3327880.1
-90.52601	30.05576	738514.3	3327544.1
-90.52283	30.05538	738821.9	3327508.6
-90.52342	30.05556	738764.6	3327527.3
-90.52342	30.05556	738764.6	3327527.3
-90.52342	30.05556	738764.6	3327527.3
-90.52342	30.05556	738764.6	3327527.3
-90.52342	30.05556	738764.6	3327527.3

15	50 06	Routine
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15	50 06	Routine
15	50 06	Routine
15	50 06	Routine
15	50 06	Routine

VOC, Total	0.01 tons	0.01
VOC, Total	0.001 tons	0.001
VOC, Total	0.001 tons	0.001
VOC, Total	0.001 tons	0.001
VOC, Total	0.001 tons	0.001
VOC, Total	0.001 tons	0.001
VOC, Total	0.001 tons	0.001
VOC, Total	2.5 tons	2.5
VOC, Total	0.159 tons	0.159
VOC, Total	0.101 tons	0.101
VOC, Total	0.95 tons	0.95
VOC, Total	0.1 tons	0.1
VOC, Total	4.7 tons	4.7
VOC, Total	1.08 tons	1.08
VOC, Total	0.001 tons	0.001
VOC, Total	0.001 tons	0.001
VOC, Total	0.0005 tons	0.0005
VOC, Total	0.0005 tons	0.0005
VOC, Total	0.0005 tons	0.0005
VOC, Total	0.0005 tons	0.0005
VOC, Total	0.0005 tons	0.0005
VOC, Total	0.0005 tons	0.0005
VOC, Total	0.0005 tons	0.0005

2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)

Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
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Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869

St. John the Baptist	MON027	46	Catalyst Sludge Receiver
St. John the Baptist	MON030	69	Reaction Modifier Totes
St. John the Baptist	MON031	70	Reboiler Antifoulant Totes
St. John the Baptist	MON071		Flare Tank Separator
St. John the Baptist	NEO168	85	Diisobutylene Nitrosate (DIBN) Storage Tank No. 3
St. John the Baptist	NEO169	86	Diisobutylene Nitrosate (DIBN) Storage Tank No. 4
St. John the Baptist	NEO170		Diisobutylene Nitrosate (DIBN) Storage Tank No. 5
St. John the Baptist	MON008		Pentane Column
St. John the Baptist	MON009		Heads Column
St. John the Baptist	MON010		Topper Column
St. John the Baptist	MON011		Refiner Column
St. John the Baptist	MON012		Recovery Column
St. John the Baptist	MON024		Isom Distillation Column
St. John the Baptist	MON067	56	Monomer Flare
St. John the Baptist	MON067	56	Monomer Flare
St. John the Baptist	MON067	56	Monomer Flare
St. John the Baptist	MON067	56	Monomer Flare
St. John the Baptist	MON067	56	Monomer Flare
St. John the Baptist	MON081	59	LPC Emergency Flare
St. John the Baptist	MON081	59	LPC Emergency Flare
St. John the Baptist	MON081	59	LPC Emergency Flare
St. John the Baptist	MON081	59	LPC Emergency Flare
St. John the Baptist	MON081	59	LPC Emergency Flare

EQT0000000027	Container	3000-V5	1110-4B	Active	30102625
EQT0000000030	Container	3000-V5	1110-10	Active	30102625
EQT0000000031	Container	3000-V5	1110-11	Active	30102625
EQT0000000071	Container	3000-V5	7000-10A.4	Active	30102625
EQT0000000168	Container	2249-V7	1700-60	Active	30102699
EQT0000000169	Container	2249-V7	1700-61	Active	30102699
EQT0000000170	Container	2249-V7	1700-62	Active	30102699
EQT0000000008	Distillation unit	3000-V5	1110-2.2	Active	30102625
EQT0000000009	Distillation unit	3000-V5	1110-2.3	Active	30102625
EQT0000000010	Distillation unit	3000-V5	1110-2.4	Active	30102625
EQT0000000011	Distillation unit	3000-V5	1110-2.5	Active	30102625
EQT0000000012	Distillation unit	3000-V5	1110-2.6	Active	30102625
EQT0000000024	Distillation unit	3000-V5	1110-3H	Active	30102625
EQT0000000067	Flare	3000-V5	7000-10A	Active	30102625
EQT0000000067	Flare	3000-V5	7000-10A	Active	30102625
EQT0000000067	Flare	3000-V5	7000-10A	Active	30102625
EQT0000000067	Flare	3000-V5	7000-10A	Active	30102625
EQT0000000067	Flare	3000-V5	7000-10A	Active	30102625
EQT0000000081	Flare	3000-V5	1-93	Active	30102625
EQT0000000081	Flare	3000-V5	1-93	Active	30102625
EQT0000000081	Flare	3000-V5	1-93	Active	30102625
EQT0000000081	Flare	3000-V5	1-93	Active	30102625
EQT0000000081	Flare	3000-V5	1-93	Active	30102625

RP0027	1110-4B CATALYST SLUDGE RECEIVER	Stack	80
RP0030	1110-10 REACTION MODIFIER TOTES	Vent	5
RP0031	1110-11 REACTOR ANTIFOULANT TOTES	Vent	5
RP0067	7000-10A FLARE STACK	Stack	129
RP0168	1700-60 DIBN TOTE #3	Vent	6
RP0169	1700-61 DIBN TOTE #4	Vent	6
RP0170	1700-62 DIBN TOTE #5	Vent	6
RP0006	1110-2 JET VENT SCRUBBER	Stack	98
RP0006	1110-2 JET VENT SCRUBBER	Stack	98
RP0006	1110-2 JET VENT SCRUBBER	Stack	98
RP0006	1110-2 JET VENT SCRUBBER	Stack	98
RP0006	1110-2 JET VENT SCRUBBER	Stack	98
RP0017	1110-3 ISOM REACTOR VENT	Stack	58.4
RP0067	7000-10A FLARE STACK	Stack	129
RP0067	7000-10A FLARE STACK	Stack	129
RP0067	7000-10A FLARE STACK	Stack	129
RP0067	7000-10A FLARE STACK	Stack	129
RP0067	7000-10A FLARE STACK	Stack	129
RP0081	2-93 LPC FLARE (EMERGENCY USE ONLY)	Stack	185
RP0081	2-93 LPC FLARE (EMERGENCY USE ONLY)	Stack	185
RP0081	2-93 LPC FLARE (EMERGENCY USE ONLY)	Stack	185
RP0081	2-93 LPC FLARE (EMERGENCY USE ONLY)	Stack	185
RP0081	2-93 LPC FLARE (EMERGENCY USE ONLY)	Stack	185

0.3	0	0.1625
0.3	0	0.1625
0.3	0	0.1625
6.5	0	2010.9
0.3	0	0.1625
0.3	0	0.1625
0.3	0	0.1625
0.3	0	0.3463
0.3	0	0.3463
0.3	0	0.3463
0.3	0	0.3463
0.3	0	0.3463
0.2	0	0.1288
6.5	0	2010.9
6.5	0	2010.9
6.5	0	2010.9
6.5	0	2010.9
6.5	0	2010.9
1	0	47.7
1	0	47.7
1	0	47.7
1	0	47.7
1	0	47.7

2.3	86
2.3	80
2.3	75
60.6	1832
2.3	82
2.3	82
2.3	82
4.9	75
4.9	75
4.9	75
4.9	75
4.9	75
4.1	86
60.6	1832
60.6	1832
60.6	1832
60.6	1832
60.6	1832
60.6	1832
60.6	1832
60.6	1832
60.6	1832
60.6	1832

-90.5227	30.05519	738834.9	3327487.8
-90.52097	30.05516	739001.8	3327488.1
-90.52325	30.05519	738781.8	3327486.7
-90.52531	30.05714	738578.5	3327698.6
-90.52505	30.05926	738598.5	3327934.1
-90.52501	30.05924	738602.4	3327932
-90.525	30.0592	738603.5	3327927.6
-90.52283	30.05538	738821.9	3327508.6
-90.52283	30.05538	738821.9	3327508.6
-90.52283	30.05538	738821.9	3327508.6
-90.52283	30.05538	738821.9	3327508.6
-90.52283	30.05538	738821.9	3327508.6
-90.52342	30.05556	738764.6	3327527.3
-90.52531	30.05714	738578.5	3327698.6
-90.52531	30.05714	738578.5	3327698.6
-90.52531	30.05714	738578.5	3327698.6
-90.52531	30.05714	738578.5	3327698.6
-90.52531	30.05714	738578.5	3327698.6
-90.52351	30.05514	738756.9	3327480.6
-90.52351	30.05514	738756.9	3327480.6
-90.52351	30.05514	738756.9	3327480.6
-90.52351	30.05514	738756.9	3327480.6
-90.52351	30.05514	738756.9	3327480.6

15	50 06	Routine
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15	50 06	Routine

VOC, Total		0.24	tons	0.24
VOC, Total		0.0005	tons	0.0005
VOC, Total		0.002	tons	0.002
VOC, Total		0.0005	tons	0.0005
VOC, Total		0.02	tons	0.02
VOC, Total		0.02	tons	0.02
VOC, Total		0.02	tons	0.02
VOC, Total		0.0005	tons	0.0005
VOC, Total		0.0005	tons	0.0005
VOC, Total		0.0005	tons	0.0005
VOC, Total		0.0005	tons	0.0005
VOC, Total		0.0005	tons	0.0005
VOC, Total		0.0005	tons	0.0005
Carbon monoxide	00630-08-0	1.752	tons	1.752
Nitrogen oxides		2.891	tons	2.891
Particulate matter (10 microns or less)		0.175	tons	0.175
Sulfur dioxide	07446-09-5	0.013	tons	0.013
VOC, Total		1.09	tons	1.09
Carbon monoxide	00630-08-0	0.013	tons	0.013
Nitrogen oxides		0.066	tons	0.066
Particulate matter (10 microns or less)		0.005	tons	0.005
Sulfur dioxide	07446-09-5	0.001	tons	0.001
VOC, Total		0.001	tons	0.001

2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)

Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
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Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869

St. John the Baptist	ACFMFU		ACR Process - Fugitive Emissions
St. John the Baptist	HCLFUG	93	Fugitive Emissions
St. John the Baptist	MONFUG	58	Chloroprene Unit - Fugitive Emissions
St. John the Baptist	NEOFUG	35	Fugitive Emissions - Neoprene Unit
St. John the Baptist	HCLC17		HCL UNIT CONDITION XVII
St. John the Baptist	MONC17		CHLOROPRENE UNIT CONDITION XVII
St. John the Baptist	NEOC17		NEOPRENE UNIT CONDITION XVII
St. John the Baptist	MONIAC		CHLOROPRENE UNIT INSIGNIFICANT ACTIVITIES
St. John the Baptist	NEOIAC		NEOPRENE UNIT INSIGNIFICANT ACTIVITIES
St. John the Baptist	NEO214		Liquid Dispersion Loading (Truck, Tote, Rail Car)
St. John the Baptist	MON021		Catalyst Mix Tank
St. John the Baptist	HCL086	62	HCl Recovery Unit
St. John the Baptist	HCL086	62	HCl Recovery Unit
St. John the Baptist	HCL086	62	HCl Recovery Unit
St. John the Baptist	HCL086	62	HCl Recovery Unit
St. John the Baptist	HCL086	62	HCl Recovery Unit
St. John the Baptist	HCL097	75	Waste Loading Vent
St. John the Baptist	MON072		Mole Sieve Vent
St. John the Baptist	MON073		Mole Sieve Regeneration Gas
St. John the Baptist	MON102		DCB Chlorinator
St. John the Baptist	MON103		Vacuum Pump
St. John the Baptist	MON105		MD Separator
St. John the Baptist	MON106		MD Bubble Column

FUG00000000002	Fugitive Emissions	3000-V5	1110-22	Active	30102699
FUG00000000003	Fugitive Emissions	206-V2	3-96	Active	30102699
FUG00000000001	Fugitive Emissions	3000-V5	3-91	Active	30102625
FUG00000000004	Fugitive Emissions	2249-V7	1-93	Active	30102699
EMS00000000001	GC XVII Emissions	206-V2		Active	30102699
EMS00000000003	GC XVII Emissions	3000-V5		Active	30102625
EMS00000000005	GC XVII Emissions	2249-V7		Active	30102699
EMS00000000004	Insignificant Activities	3000-V5		Active	30102625
EMS00000000007	Insignificant Activities	2249-V7		Active	30102699
EQT00000000214	Loading apparatus	2249-V7	1700-85	Active	30102699
EQT00000000021	Mixer	3000-V5	1110-3D	Active	30102625
EQT00000000086	Other	206-V2	7000-15	Active	30102699
EQT00000000086	Other	206-V2	7000-15	Active	30102699
EQT00000000086	Other	206-V2	7000-15	Active	30102699
EQT00000000086	Other	206-V2	7000-15	Active	30102699
EQT00000000086	Other	206-V2	7000-15	Active	30102699
EQT00000000097	Other	206-V2	1-96	Active	30102699
EQT00000000072	Other	3000-V5	7000-10A.5	Active	30102625
EQT00000000073	Other	3000-V5	7000-10A.6	Active	30102625
EQT00000000102	Other	3000-V5	1110-26A	Active	30102699
EQT00000000103	Other	3000-V5	1110-26B	Active	30102699
EQT00000000105	Other	3000-V5	1110-26D	Active	30102699
EQT00000000106	Other	3000-V5	1110-26E	Active	30102699

RPF005	1110-22 ACR PROCESS - FUGITIVE EMISSIONS	Fugitive	3
RPF003	3-96 HCL UNIT FUGITIVE EMISSIONS	Fugitive	3
RPF001	3-91 FUGITIVE EMISSIONS CHLOROPRENE UNIT	Fugitive	3
RPF004	1-93 FUGITIVE EMISSIONS NEOPRENE UNIT	Fugitive	3
RPHC17	HCL UNI GC XVII	Area	3
RPMC17	CHLOROPRENE UNIT GC XVII	Area	3
RPNC17	NEOPRENE UNIT GC XVII	Area	3
RPMIAC	CHLOROPRENE UNIT INSIGNIFICANT ACTIVITIES	Area	3
RPNIAC	NEOPRENE UNIT INSIGNIFICANT ACTIVITIES	Area	3
RPN214	1700-85 AFS LOADING EMISSIONS	Vent	10
RP0017	1110-3 ISOM REACTOR VENT	Stack	58.4
RP0086	7000-15 HCL RECOVERY UNIT	Stack	120
RP0086	7000-15 HCL RECOVERY UNIT	Stack	120
RP0086	7000-15 HCL RECOVERY UNIT	Stack	120
RP0086	7000-15 HCL RECOVERY UNIT	Stack	120
RP0086	7000-15 HCL RECOVERY UNIT	Stack	120
RP0097	1-96 WASTE LOADING VENT	Stack	43.5
RP0067	7000-10A FLARE STACK	Stack	129
RP0067	7000-10A FLARE STACK	Stack	129
RP0114	1110-26 ACR PROCESS VENT	Vent	120
RP0114	1110-26 ACR PROCESS VENT	Vent	120
RP0114	1110-26 ACR PROCESS VENT	Vent	120
RP0114	1110-26 ACR PROCESS VENT	Vent	120

	5000	5000	0	0
	5000	5000	0	0
	5000	5000	0	0
	5000	5000	0	0
	1000	1000	0	
	1000	1000	0	
	1000	1000	0	
	1000	1000	0	
	1000	1000	0	
0.3			0	0.1625
0.2			0	0.1288
1.5			0	79.5
1.5			0	79.5
1.5			0	79.5
1.5			0	79.5
1.5			0	79.5
0.2			0	0.2
6.5			0	2010.9
6.5			0	2010.9
0.5			0	0.2
0.5			0	0.2
0.5			0	0.2
0.5			0	0.2

	80
	80
	80
2.3	30
4.1	86
45	110
45	110
45	110
45	110
45	110
6.1	86
60.6	1832
60.6	1832
1	84
1	84
1	84
1	84

-90.52296	30.05515	738809.9	3327482.9
-90.52565	30.0568	738546.5	3327660.2
-90.5229	30.05534	738815.2	3327504
-90.52424	30.05876	738677.8	3327880.4
-90.52573	30.0567	738539.1	3327648.9
-90.52326	30.05517	738780.9	3327484.4
-90.52422	30.05877	738679.7	3327881.5
-90.52319	30.05506	738787.9	3327472.4
-90.52428	30.05869	738674.1	3327872.5
-90.52403	30.05911	738697.2	3327919.6
-90.52342	30.05556	738764.6	3327527.3
-90.52579	30.05681	738533	3327661
-90.52579	30.05681	738533	3327661
-90.52579	30.05681	738533	3327661
-90.52579	30.05681	738533	3327661
-90.52579	30.05681	738533	3327661
-90.52613	30.05587	738502.5	3327556.1
-90.52531	30.05714	738578.5	3327698.6
-90.52531	30.05714	738578.5	3327698.6
-90.52298	30.05512	738808.1	3327479.5
-90.52298	30.05512	738808.1	3327479.5
-90.52298	30.05512	738808.1	3327479.5
-90.52298	30.05512	738808.1	3327479.5

15	50 06	Routine
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15	50 06	Routine

VOC, Total		0.001 tons	0.001
VOC, Total		1.16 tons	1.16
VOC, Total		1.43 tons	1.43
VOC, Total		2.156 tons	2.156
VOC, Total		0.204 tons	0.204
VOC, Total		2.31 tons	2.31
VOC, Total		2.3 tons	2.3
VOC, Total		0.0005 tons	0.0005
VOC, Total		0.03 tons	0.03
VOC, Total		0.08 tons	0.08
VOC, Total		0.0005 tons	0.0005
Carbon monoxide	00630-08-0	5.09 tons	5.09
Nitrogen oxides		87.67 tons	87.67
Sulfur dioxide	07446-09-5	0.965 tons	0.965
VOC, Total		0.025 tons	0.025
Particulate matter (10 microns or less)		9.38 tons	9.38
VOC, Total		0.006 tons	0.006
VOC, Total		0.0005 tons	0.0005
VOC, Total		0.0005 tons	0.0005
VOC, Total		0.001 tons	0.001
VOC, Total		0.001 tons	0.001
VOC, Total		0.001 tons	0.001
VOC, Total		0.001 tons	0.001

2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
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2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)

Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
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Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869

St. John the Baptist	MON112		Decanter Standpipe
St. John the Baptist	MON114		ACR Process Vent
St. John the Baptist	NEO135	11	Poly Kettles Manholes / Strainers (1 & 2) Common Vent
St. John the Baptist	NEO136	76	Poly Kettles Manholes / Strainers (3, 4, & 5) Common Vent
St. John the Baptist	NEO137		Acetic Acid Make-Up Tank
St. John the Baptist	NEO139	17	CD Refining Column Jet
St. John the Baptist	NEO139	17	CD Refining Column Jet
St. John the Baptist	NEO140	18	CD Refining Column Jet (Spare)
St. John the Baptist	NEO140	18	CD Refining Column Jet (Spare)
St. John the Baptist	NEO142	24	East Wash Belt Dryer
St. John the Baptist	NEO143	25	West Wash Belt Dryer
St. John the Baptist	NEO144	26	East Hot Dryer Exhaust
St. John the Baptist	NEO145	27	West Hot Dryer Exhaust
St. John the Baptist	NEO146	28	No. 1 East Dryer Cooling Compartment
St. John the Baptist	NEO147	29	No. 1 West Dryer Cooling Compartment
St. John the Baptist	NEO148	30	No. 2 East Dryer Cooling Compartment
St. John the Baptist	NEO149	31	No. 2 West Dryer Cooling Compartment
St. John the Baptist	NEO167	10	No. 6 Emulsion Storage Tank Manhole
St. John the Baptist	NEO185	91	Poly Building Wall Fans
St. John the Baptist	NEO209		ACR Refining Column
St. John the Baptist	NEO211		ACR RC Reboiler
St. John the Baptist	NEO230		No. 10 Emulsion Storage Tank Manway
St. John the Baptist	NEO231		No. 13 Emulsion Storage Tank Manway

EQT00000000112	Other	3000-V5	1110-26K	Active	30102699
EQT00000000114	Other	3000-V5	1110-26	Active	30102699
EQT00000000135	Other	2249-V7	1700-13	Active	30102699
EQT00000000136	Other	2249-V7	1700-13A	Active	30102699
EQT00000000137	Other	2249-V7	1700-14B.1	Active	30102699
EQT00000000139	Other	2249-V7	1700-20	Active	30102699
EQT00000000139	Other	2249-V7	1700-20	Active	30102699
EQT00000000140	Other	2249-V7	1700-20A	Active	30102699
EQT00000000140	Other	2249-V7	1700-20A	Active	30102699
EQT00000000142	Other	2249-V7	1700-25	Active	30102699
EQT00000000143	Other	2249-V7	1700-26	Active	30102699
EQT00000000144	Other	2249-V7	1700-27	Active	30102699
EQT00000000145	Other	2249-V7	1700-28	Active	30102699
EQT00000000146	Other	2249-V7	1700-45	Active	30102699
EQT00000000147	Other	2249-V7	1700-46	Active	30102699
EQT00000000148	Other	2249-V7	1700-47	Active	30102699
EQT00000000149	Other	2249-V7	1700-48	Active	30102699
EQT00000000167	Other	2249-V7	1700-5A	Active	30102699
EQT00000000185	Other	2249-V7	1700-66	Active	30102699
EQT00000000209	Other	2249-V7	1700-81.5	Active	30102699
EQT00000000211	Other	2249-V7	1700-81.7	Active	30102699
EQT00000000230	Other	2249-V7	1700-87	Active	30102699
EQT00000000231	Other	2249-V7	1700-88	Active	30102699

RP0114	1110-26 ACR PROCESS VENT	Vent	120
RP0114	1110-26 ACR PROCESS VENT	Vent	120
RP0135	1700-13 POLYKETTLE MANHOLE	Vent	58.2
RP0136	1700-13A LPK MH/STRAINERS (3,4 & 5)	Vent	59
RPG006	1700-14B SOLUITON MAKE UP	Stack	57
RP0139	1700-20 CD REFINING COLUMN JETS	Stack	63.5
RP0139	1700-20 CD REFINING COLUMN JETS	Stack	63.5
RP0140	1700-20A CD REFINING COLUMN JET SPARE	Stack	63.4
RP0140	1700-20A CD REFINING COLUMN JET SPARE	Stack	63.4
RP0142	1700-25 EAST WASH BELT DRYER	Stack	31
RP0143	1700-26 WEST WASH BELT DRYER	Stack	31
RP0144	1700-27 EAST HOT DRYER	Stack	65.5
RP0145	1700-28 WEST HOT DRYER	Stack	65.5
RP0146	1700-45 #1 EAST COOLING COMPARTMENT	Stack	49.6
RP0147	1700-46 #1 WEST COOLING COMPARTMENT	Stack	49.6
RP0148	1700-47 #2 EAST COOLING COMPARTMENT	Stack	49.6
RP0149	1700-48 #2 WEST COOLING COMPARTMENT	Stack	49.6
RP0167	1700-5A NO. 6 EMUL STORAGE TANK MANHOLE	Vent	53.8
RP0185	1700-66 BUILDING EXHAUST FAN	Area	3
RPN018	1700-81 - ACR Refining Vent	Vent	70.2
RPN018	1700-81 - ACR Refining Vent	Vent	70.2
RPN230	No. 10 Emulsion Storage Tank Manway	Vent	55
RPN231	No. 13 Emulsion Storage Tank Manway	Vent	55

0.5			0	0.2
0.5			0	0.2
1.3			0	115
2			0	141.7
1.5			0	185
0.2			0	0.1099
0.2			0	0.1099
0.2			0	0.1099
0.2			0	0.1099
14.1			0	2841.8
14.1			0	2841.8
3			0	476.7
3			0	476.7
2.7			0	344.2
2.7			0	344.2
2.7			0	344.2
2.7			0	344.2
1.3			0	123.3
	500	500	0	7939.4
0.3			0	0.1625
0.3			0	0.1625
0.17			0	1.4
0.17			0	1.4

1	84
1	84
82.4	77
45.1	77
104.7	77
3.5	65
3.5	65
3.5	65
3.5	65
18.2	104
18.2	104
67.4	250
67.4	250
61.6	122
61.6	122
61.6	122
61.6	122
88.3	77
	77
2.3	82
2.3	82
60	77
60	77

-90.52298	30.05512	738808.1	3327479.5
-90.52298	30.05512	738808.1	3327479.5
-90.52452	30.05898	738650.3	3327904.2
-90.52453	30.05903	738649.2	3327909.7
-90.52443	30.05886	738659.2	3327891.1
-90.52437	30.05821	738666.6	3327819.1
-90.52437	30.05821	738666.6	3327819.1
-90.52432	30.05821	738671.4	3327819.2
-90.52432	30.05821	738671.4	3327819.2
-90.52458	30.05944	738643.4	3327955.1
-90.52467	30.05941	738634.8	3327951.5
-90.52459	30.05943	738642.4	3327953.9
-90.52464	30.05942	738637.6	3327952.7
-90.52465	30.05964	738636.1	3327977.1
-90.52469	30.05963	738632.3	3327975.9
-90.52481	30.05959	738620.8	3327971.2
-90.52476	30.05961	738625.6	3327973.5
-90.52434	30.05897	738667.7	3327903.5
-90.52407	30.05902	738693.6	3327909.6
-90.52439	30.05876	738663.3	3327880.1
-90.52439	30.05876	738663.3	3327880.1
-90.52427	30.05902	738674.3	3327909.1
-90.52428	30.05901	738673.3	3327908

15	50 06	Routine
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15	50 06	Routine

VOC, Total	0.001 tons	0.001
VOC, Total	0.001 tons	0.001
VOC, Total	4.562 tons	4.562
VOC, Total	5.62 tons	5.62
VOC, Total	0.0005 tons	0.0005
Nitrogen oxides	1.461 tons	1.461
VOC, Total	5.494 tons	5.494
Nitrogen oxides	1.461 tons	1.461
VOC, Total	5.494 tons	5.494
VOC, Total	2.9 tons	2.9
VOC, Total	2.9 tons	2.9
VOC, Total	14.837 tons	14.837
VOC, Total	14.837 tons	14.837
VOC, Total	0.0005 tons	0.0005
VOC, Total	0.0005 tons	0.0005
VOC, Total	0.0005 tons	0.0005
VOC, Total	0.0005 tons	0.0005
VOC, Total	1.227 tons	1.227
VOC, Total	27.935 tons	27.935
VOC, Total	0.001 tons	0.001
VOC, Total	0.001 tons	0.001
VOC, Total	1.225 tons	1.225
VOC, Total	0.603 tons	0.603

2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)

Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
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Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869

St. John the Baptist	NEO232		No. 14 Emulsion Storage Tank Manway
St. John the Baptist	NEOG10	88	Vent Header System
St. John the Baptist	NEOR13		Stabilizer & Catalyst Tanks Manholes Vent
St. John the Baptist	NEOR14		Strippers Condenser Vent
St. John the Baptist	NEOR15		Poly Kettles Vent Condenser
St. John the Baptist	NEOR16	81	No. 6, 7, 8, 10, 13, & 14 Unstripped Storage Tanks Depressure Vent (Surge Control Vessels)
St. John the Baptist	NEOR18		ACR Refining Vent
St. John the Baptist	NEOR19		ACR Drumming Vent
St. John the Baptist	NER106		Acetic Acid Make-up and Hold up Tanks Common Vent
St. John the Baptist	MON017	44	Isom Reactor Vent System
St. John the Baptist	MON025		Isom Reactors
St. John the Baptist	MON107		MD Pre-reactor
St. John the Baptist	MON108		ACR Chlorinator Separator
St. John the Baptist	MON109		ACR Chlorinator
St. John the Baptist	MON115		ACR/Water Decanter
St. John the Baptist	NEO222		Large Poly Kettle Vent No. 1
St. John the Baptist	NEO223		Large Poly Kettle Vent No. 2
St. John the Baptist	NEO224		Large Poly Kettle Vent No. 3
St. John the Baptist	NEO225		Large Poly Kettle Vent No. 4
St. John the Baptist	NEO226		Large Poly Kettle Vent No. 5
St. John the Baptist	HCL087	63	HCl Feed Tanks' Scrubber
St. John the Baptist	MON006	41	Refining Jets Vent System
St. John the Baptist	NEO219		Stripper No. 1

EQT00000000232	Other	2249-V7	1700-89	Active	30102699
Not Listed	Other	2249-V7	1700-63	Active	30102699
RLP00000000013	Other	2249-V7	1700-14B.3	Active	30102699
RLP00000000014	Other	2249-V7	1700-2	Active	30102699
RLP00000000015	Other	2249-V7	1700-3	Active	30102699
RLP00000000016	Other	2249-V7	1700-56	Active	30102699
RLP00000000018	Other	2249-V7	1700-81	Active	30102699
RLP00000000019	Other	2249-V7	1700-83	Active	30102699
RLP00000000106	Other	2249-V7	1700-14B	Active	30102699
EQT00000000017	Reactor vessel	3000-V5	1110-3	Active	30102625
EQT00000000025	Reactor vessel	3000-V5	1110-3I	Active	30102625
EQT00000000107	Reactor vessel	3000-V5	1110-26F	Active	30102699
EQT00000000108	Reactor vessel	3000-V5	1110-26G	Active	30102699
EQT00000000109	Reactor vessel	3000-V5	1110-26H	Active	30102699
EQT00000000228	Reactor vessel	3000-V5	1110-26M	Active	30102699
EQT00000000222	Reactor vessel	2249-V7	1700-3A	Active	30102699
EQT00000000223	Reactor vessel	2249-V7	1700-3B	Active	30102699
EQT00000000224	Reactor vessel	2249-V7	1700-3C	Active	30102699
EQT00000000225	Reactor vessel	2249-V7	1700-3D	Active	30102699
EQT00000000226	Reactor vessel	2249-V7	1700-3E	Active	30102699
EQT00000000087	Scrubber	206-V2	7000-17	Active	30102699
EQT00000000006	Scrubber	3000-V5	1110-2	Active	30102625
EQT00000000219	Steam stripper	2249-V7	1700-2A	Active	30102699

RPN232	No. 14 Emulsion Storage Tank Manway	Vent	55
RPG010	1700-63 1712 COMMON VENT HEADER	Stack	33
RPG006	1700-14B SOLUITON MAKE UP	Stack	57
RPN014	1700-2 STRIPPERS COMMON VENT	Stack	62.4
RPN015	1700-3 POLY KETTLES COMMON VENT	Stack	62.4
RPN016	1700-56 UNSTRIPPED TANKS DEPRESS. VENT	Stack	55
RPN018	1700-81 - ACR Refining Vent	Vent	70.2
RPN019	1700-83 - ACR Drumming Vent	Vent	15
RPN106	Acetic Acid Make-up and Hold-up Tanks Common Vent	Stack	57
RP0017	1110-3 ISOM REACTOR VENT	Stack	58.4
RP0017	1110-3 ISOM REACTOR VENT	Stack	58.4
RP0114	1110-26 ACR PROCESS VENT	Vent	120
RP0114	1110-26 ACR PROCESS VENT	Vent	120
RP0114	1110-26 ACR PROCESS VENT	Vent	120
RP0114	1110-26 ACR PROCESS VENT	Vent	120
RPN015	1700-3 POLY KETTLES COMMON VENT	Stack	62.4
RPN015	1700-3 POLY KETTLES COMMON VENT	Stack	62.4
RPN015	1700-3 POLY KETTLES COMMON VENT	Stack	62.4
RPN015	1700-3 POLY KETTLES COMMON VENT	Stack	62.4
RPN015	1700-3 POLY KETTLES COMMON VENT	Stack	62.4
RP0087	7000-17 HCL FEED TANKS	Vent	10
RP0006	1110-2 JET VENT SCRUBBER	Stack	98
RPN014	1700-2 STRIPPERS COMMON VENT	Stack	62.4

0.17	0	1.4
0.1	0	0.0534
1.5	0	185
0.3	0	0.1
0.3	0	0.3
0.2	0	18.8
0.3	0	0.1625
1	0	2
1.5	0	190
0.2	0	0.1288
0.2	0	0.1288
0.5	0	0.2
0.5	0	0.2
0.5	0	0.2
0.5	0	0.2
0.3	0	0.3
0.3	0	0.3
0.3	0	0.3
0.3	0	0.3
0.3	0	0.3
0.2	0	0.1445
0.3	0	0.3463
0.3	0	0.1

60	77
6.8	41
104.7	77
1.4	30
4.2	34
600	77
2.3	82
2.6	75
104.7	77
4.1	86
4.1	86
1	84
1	84
1	84
1	84
4.2	34
4.2	34
4.2	34
4.2	34
4.2	34
4.6	86
4.9	75
1.4	30

-90.52426	30.05902	738675.2	3327909.2
-90.52446	30.0581	738658.2	3327806.8
-90.52443	30.05886	738659.2	3327891.1
-90.52451	30.05903	738651.1	3327909.8
-90.52449	30.05899	738653.1	3327905.4
-90.52429	30.05901	738672.4	3327908
-90.52439	30.05876	738663.3	3327880.1
-90.52462	30.05787	738643.3	3327780.9
-90.52444	30.05886	738658.3	3327891.1
-90.52342	30.05556	738764.6	3327527.3
-90.52342	30.05556	738764.6	3327527.3
-90.52298	30.05512	738808.1	3327479.5
-90.52298	30.05512	738808.1	3327479.5
-90.52298	30.05512	738808.1	3327479.5
-90.52298	30.05512	738808.1	3327479.5
-90.52449	30.05899	738653.1	3327905.4
-90.52449	30.05899	738653.1	3327905.4
-90.52449	30.05899	738653.1	3327905.4
-90.52449	30.05899	738653.1	3327905.4
-90.52449	30.05899	738653.1	3327905.4
-90.52553	30.05669	738558.4	3327648.2
-90.52283	30.05538	738821.9	3327508.6
-90.52451	30.05903	738651.1	3327909.8

15	50 06	Routine
15	50 06	Routine
15	50 06	Routine
15	50 06	Routine
15	50 06	Routine
15	50 06	Routine
15	50 06	Routine
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15	50 06	Routine
15	50 06	Routine
15	50 06	Routine
15	50 06	Routine
15	50 06	Routine
15	50 06	Routine

VOC, Total	0.603 tons	0.603
VOC, Total	1.946 tons	1.946
VOC, Total	0.5 tons	0.5
VOC, Total	9.182 tons	9.182
VOC, Total	23.137 tons	23.137
VOC, Total	2.798 tons	2.798
VOC, Total	2.2 tons	2.2
VOC, Total	0.006 tons	0.006
VOC, Total	0.055 tons	0.055
VOC, Total	1.79 tons	1.79
VOC, Total	0.0005 tons	0.0005
VOC, Total	0.001 tons	0.001
VOC, Total	0.001 tons	0.001
VOC, Total	0.001 tons	0.001
VOC, Total	0.001 tons	0.001
VOC, Total	0.001 tons	0.001
VOC, Total	0.001 tons	0.001
VOC, Total	0.001 tons	0.001
VOC, Total	0.001 tons	0.001
VOC, Total	0.001 tons	0.001
VOC, Total	1.39 tons	1.39
VOC, Total	2.98 tons	2.98
VOC, Total	0.001 tons	0.001

2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)
2014	38806	E I DuPont de Nemours & Co - Pontchartrain Site	E I DuPont de Nemours & Co Inc	586 Hwy 44	(portion of)

Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869
Laplace	LA	70068	325212	2869

St. John the Baptist	NEO220		Stripper No. 2
St. John the Baptist	NEO221		Stripper No. 3
St. John the Baptist	NEO202	36	Diversion Tank (Waste Water Tank)
St. John the Baptist	NEO203	37	Surge Tank (Waste Water Tank)
St. John the Baptist	NEO204	38	Aeration Tank (Waste Water Tank)

EQT00000000220	Steam stripper	2249-V7	1700-2B	Active	30102699
EQT00000000221	Steam stripper	2249-V7	1700-2C	Active	30102699
EQT00000000202	Wastewater Treatment System	2249-V7	3-95	Active	30102699
EQT00000000203	Wastewater Treatment System	2249-V7	4-95	Active	30102699
EQT00000000204	Wastewater Treatment System	2249-V7	5-95	Active	30102699

RPN014	1700-2 STRIPPERS COMMON VENT	Stack	62.4
RPN014	1700-2 STRIPPERS COMMON VENT	Stack	62.4
RP0202	3-95 DIVERSION TANK	Area	3
RP0203	4-95 NO. 1 AERATION TANK	Area	3
RP0204	5-95 NO. 2 AERATION TANK	Area	3

0.3			0	0.1
0.3			0	0.1
	60	60	0	0
	60	60	0	0
	60	60	0	0

1.4	30
1.4	30
	77
	77
	77

-90.52451	30.05903	738651.1	3327909.8
-90.52451	30.05903	738651.1	3327909.8
-90.52562	30.06033	738541	3328051.6
-90.52578	30.06027	738525.7	3328044.6
-90.52549	30.05976	738554.9	3327988.6

15	50 06	Routine
15	50 06	Routine
15	50 06	Routine
15	50 06	Routine
15	50 06	Routine

VOC, Total	0.001 tons	0.001
VOC, Total	0.001 tons	0.001
VOC, Total	0.001 tons	0.001
VOC, Total	2.293 tons	2.293
VOC, Total	0.027 tons	0.027

Message

From: Yurk, Jeffrey [yurk.jeffrey@epa.gov]
Sent: 12/8/2015 9:25:13 PM
To: Thompson, Steve [thompson.steve@epa.gov]
Subject: FW: DuPont Laplace permit data
Attachments: DuPont Laplace permit assessment.xlsx

Looks like there are a number of chloroprene sources under group CAP's including the 3rd and 4th largest sources. I have a printed off copy of the permit if you want it.

Jeff

From: Yurk, Jeffrey
Sent: Tuesday, December 08, 2015 1:57 PM
To: Thompson, Steve
Subject: DuPont Laplace permit data

Tab one has 2014 emissions inventory data for sources of chloroprene in the emissions inventory that had permit limits that existed in 2012.

Tab Two has 2014 emissions inventory data for sources of all contaminants in the emissions inventory that had permit limits that existed in 2012.

Tab Three is the 2014 emissions inventory for DuPont Laplace- I've filtered the chloroprene so you can see the third and fourth largest sources of chloroprene do not have permit limits. Only 29 of the 112 sources of chloroprene listed in the emissions inventory appear to have permit limits.

Message

From: Welton, Patricia [Welton.Patricia@epa.gov]
Sent: 12/8/2015 7:59:32 PM
To: Osbourne, Margaret [osbourne.margaret@epa.gov]; Leathers, James [Leathers.James@epa.gov]
Subject: FW: DuPont LaPlace LA Action Plan Chloroprene Dec 3 2015.docx
Attachments: la-Place_dow_decision2001.pdf; ATT00001.htm

From: Welton, Patricia
Sent: Tuesday, December 08, 2015 1:44 PM
To: Lannen, Justin
Subject: FW: DuPont LaPlace LA Action Plan Chloroprene Dec 3 2015.docx

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From: Seager, Cheryl
Sent: Monday, December 07, 2015 10:16 AM
To: Welton, Patricia
Subject: Fwd: DuPont LaPlace LA Action Plan Chloroprene Dec 3 2015.docx

Sent from my iPhone

Begin forwarded message:

> **From:** "Gray, David" <gray.david@epa.gov>
> **Date:** December 7, 2015 at 8:12:28 AM CST
> **To:** "Stenger, Wren" <stenger.wren@epa.gov>, "Curry, Ron" <Curry.Ron@epa.gov>, "Coleman, Sam" <Coleman.Sam@epa.gov>, "Blanco, Arturo" <Blanco.Arturo@epa.gov>, "Blevins, John" <Blevins.John@epa.gov>, "Seager, Cheryl" <Seager.Cheryl@epa.gov>, "Edlund, Carl" <Edlund.Carl@epa.gov>, "Garcia, David" <Garcia.David@epa.gov>, "Gilrein, Stephen" <gilrein.stephen@epa.gov>, "Harrison, Ben" <Harrison.Ben@epa.gov>, "Honker, William" <honker.william@epa.gov>, "Phillips, Pam" <phillips.pam@epa.gov>, "Smith, Rhonda" <smith.rhonda@epa.gov>, "Taheri, Diane" <Taheri.Diane@epa.gov>, "Pettigrew, George" <pettigrew.george@epa.gov>, "Lyke, Jennifer" <Lyke.Jennifer@epa.gov>
> **Cc:** "Brown, Jamesr" <brown.jamesr@epa.gov>, "Runnels, Charlotte" <Runnels.Charlotte@epa.gov>, "Ruiz, Thomas" <Ruiz.Thomas@epa.gov>, "Anderson, Israel" <Anderson.Israel@epa.gov>, "Hansen, Mark" <Hansen.Mark@epa.gov>, "Verhalen, Frances" <verhalen.frances@epa.gov>, "Casso, Ruben" <Casso.Ruben@epa.gov>, "Yurk, Jeffrey" <yurk.jeffrey@epa.gov>, "Ruhl, Christopher" <Ruhl.Christopher@epa.gov>, "Johnson, Lydia" <johnson.lydia@epa.gov>, "Young, Carl" <young.carl@epa.gov>, "McGee, Tomika" <McGee.Tomika@epa.gov>, "Crossland, Ronnie" <Crossland.Ronnie@epa.gov>
> **Subject: RE: DuPont LaPlace LA Action Plan Chloroprene Dec 3 2015.docx**
>
> Here is a copy of the Dupont Title V response from 2003.
>
> ---
>
> **From:** Stenger, Wren
> **Sent:** Thursday, December 03, 2015 5:29 PM
> **To:** Curry, Ron; Coleman, Sam; Blanco, Arturo; Blevins, John; Seager, Cheryl; Edlund, Carl; Garcia, David;

Gilrein, Stephen; Gray, David; Harrison, Ben; Honker, William; Phillips, Pam; Smith, Rhonda; Taheri, Diane; Pettigrew, George; Lyke, Jennifer
Cc: Brown, Jamesr; Runnels, Charlotte; Ruiz, Thomas; Anderson, Israel; Hansen, Mark; Verhalen, Frances; Casso, Ruben; Yurk, Jeffrey; Ruhl, Christopher; Johnson, Lydia; Young, Carl; McGee, Tomika; Crossland, Ronnie
Subject: DuPont LaPlace LA Action Plan Chloroprene Dec 3 2015.docx

I already have some input so am resending the draft action plan. You can begin to see what this will ultimately look like. Thanks for the quick input so far. Still DRAFT

Message

From: Welton, Patricia [Welton.Patricia@epa.gov]
Sent: 12/8/2015 8:00:11 PM
To: Osbourne, Margaret [osbourne.margaret@epa.gov]; Leathers, James [Leathers.James@epa.gov]
Subject: FW: DuPont Pontchartrain

From: Welton, Patricia
Sent: Tuesday, December 08, 2015 1:44 PM
To: Lannen, Justin
Subject: FW: DuPont Pontchartrain

From: Seager, Cheryl
Sent: Monday, December 07, 2015 10:16 AM
To: Welton, Patricia
Subject: Fwd: DuPont Pontchartrain

Sent from my iPhone

Begin forwarded message:

> **From:** "Smidinger, Betsy" <Smidinger.Betsy@epa.gov>
> **Date:** December 4, 2015 at 3:10:54 PM CST
> **To:** "Shinkman, Susan" <Shinkman.Susan@epa.gov>, "Blevins, John" <Blevins.John@epa.gov>, "Kelley, Rosemarie" <Kelley.Rosemarie@epa.gov>
> **Cc:** "Starfield, Lawrence" <Starfield.Lawrence@epa.gov>, "Gilrein, Stephen" <gilrein.stephen@epa.gov>, "Seager, Cheryl" <Seager.Cheryl@epa.gov>, "Brooks, Phillip" <Brooks.Phillip@epa.gov>, "Chapman, Apple" <Chapman.Apple@epa.gov>, "Fried, Gregory" <Fried.Gregory@epa.gov>, "Messina, Edward" <Messina.Edward@epa.gov>
> **Subject: RE: DuPont Pontchartrain**
>
> Hi All...Scott Throwe is looking into this for us. We use the NATA data but targeting and analysis work. Our initial reaction is that we don't believe we need to be involved in this 114 letter. We'll let you know if we find out something different.
>
> **From:** Shinkman, Susan
> **Sent:** Friday, December 04, 2015 2:25 PM
> **To:** Blevins, John <Blevins.John@epa.gov>; Kelley, Rosemarie <Kelley.Rosemarie@epa.gov>; Smidinger, Betsy <Smidinger.Betsy@epa.gov>
> **Cc:** Starfield, Lawrence <Starfield.Lawrence@epa.gov>; Gilrein, Stephen <gilrein.stephen@epa.gov>; Seager, Cheryl <Seager.Cheryl@epa.gov>; Brooks, Phillip <Brooks.Phillip@epa.gov>; Chapman, Apple <Chapman.Apple@epa.gov>; Fried, Gregory <Fried.Gregory@epa.gov>
> **Subject:** RE: DuPont Pontchartrain
>
> OCE has no information about this. What is the issue?

From: Blevins, John
Sent: Friday, December 04, 2015 8:23 AM
To: Shinkman, Susan <Shinkman.Susan@epa.gov>; Kelley, Rosemarie <Kelley.Rosemarie@epa.gov>; Smidinger, Betsy <Smidinger.Betsy@epa.gov>
Cc: Starfield, Lawrence <Starfield.Lawrence@epa.gov>; Gilrein, Stephen <gilrein.stephen@epa.gov>; Seager, Cheryl <Seager.Cheryl@epa.gov>
Subject: Fwd: DuPont Pontchartrain

All- is OECA in the loop on the "issue" surrounding the DuPont facility and the release of new NATA data related to modeled exposure numbers related to chloroprene? Is it my understanding that OAR/OAQPS is working on a 114 info request for data collection. Is OECA involved in drafting 114 request? If not should we be?

I am out today and Monday but have my phone if we need to talk.

Thanks

John

Subject: FW: DuPont Pontchartrain

Message

From: Welton, Patricia [Welton.Patricia@epa.gov]
Sent: 12/8/2015 8:00:50 PM
To: Osbourne, Margaret [osbourne.margaret@epa.gov]; Leathers, James [Leathers.James@epa.gov]
Subject: FW: DUPONT Information
Attachments: Dupont Pontchartrain Works ejscreen .5 mile Radius.pdf; ATT00001.htm; Dupont Pontchartrain Works ejscreen - 1 mile Radius.pdf; ATT00002.htm; Dupont Pontchartrain Works ejscreen - 3 mile Radius.pdf; ATT00003.htm; Dupont - Schools, Community Org, Faith Based Org - 2015.docx; ATT00004.htm

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From: Welton, Patricia
Sent: Tuesday, December 08, 2015 1:44 PM
To: Lannen, Justin
Subject: FW: DUPONT Information

From: Seager, Cheryl
Sent: Monday, December 07, 2015 11:36 AM
To: Welton, Patricia
Subject: Fwd: DUPONT Information

Sent from my iPhone

Begin forwarded message:

> **From:** "Anderson, Israel" <Anderson.Israel@epa.gov>
> **To:** "Stenger, Wren" <stenger.wren@epa.gov>, "Blanco, Arturo" <Blanco.Arturo@epa.gov>, "Blevins, John" <Blevins.John@epa.gov>, "Gilrein, Stephen" <gilrein.stephen@epa.gov>, "Yurk, Jeffrey" <yurk.jeffrey@epa.gov>, "Smith, Rhonda" <smith.rhonda@epa.gov>, "Edlund, Carl" <Edlund.Carl@epa.gov>, "Phillips, Pam" <phillips.pam@epa.gov>, "Seager, Cheryl" <Seager.Cheryl@epa.gov>, "Hansen, Mark" <Hansen.Mark@epa.gov>, "Pettigrew, George" <pettigrew.george@epa.gov>, "Honker, William" <honker.william@epa.gov>, "Garcia, David" <Garcia.David@epa.gov>, "Casso, Ruben" <Casso.Ruben@epa.gov>, "Harrison, Ben" <Harrison.Ben@epa.gov>, "Coleman, Sam" <Coleman.Sam@epa.gov>, "Johnson, Lydia" <johnson.lydia@epa.gov>, "Runnels, Charlotte" <Runnels.Charlotte@epa.gov>, "Ruhl, Christopher" <Ruhl.Christopher@epa.gov>, "Lyke, Jennifer" <Lyke.Jennifer@epa.gov>
> **Cc:** "Verhalen, Frances" <verhalen.frances@epa.gov>, "Ruiz, Thomas" <Ruiz.Thomas@epa.gov>, "Crossland, Ronnie" <Crossland.Ronnie@epa.gov>, "McGee, Tomika" <McGee.Tomika@epa.gov>, "Young, Carl" <young.carl@epa.gov>
> **Subject: FW: DUPONT Information**
>
> Resending EJSCREEN Reports for the .5 mile, 1 mile, and 3 mile radius from the DuPont Pontchartrain Works facility as well as some information about the two closest schools to the site and a list of community/environmental justice organizations who would need to be contacted when it is deemed appropriate and some info on nearby churches.
>
> From: Runnels, Charlotte

Sent: Monday, December 07, 2015 11:00 AM
To: Anderson, Israel
Subject: DUPONT Information

Message

From: Thompson, Steve [thompson.steve@epa.gov]
Sent: 12/11/2015 6:56:48 PM
To: Osbourne, Margaret [osbourne.margaret@epa.gov]
Subject: Re: LaPlace 114

You can send to Scott now. Let me send you everything that I have.

Sent from my iPhone

On Dec 11, 2015, at 12:45 PM, Osbourne, Margaret <osbourne.margaret@epa.gov> wrote:

When should I share the draft with Scott Throwe?

Also, is there a write-up about the re-classification of chloroprene? I haven't found anything.

Thanks,
Margaret

Margaret Osbourne
Chief, Air Toxics Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Avenue (6EN-AT)
Dallas, TX 75202
214-665-6508

From: Thompson, Steve
Sent: Friday, December 04, 2015 8:12 AM
To: Osbourne, Margaret
Subject: Fwd: DuPont LaPlace LA Action Plan Chloroprene DRAFT Dec 3 2015.docx

Lets talk on Monday. This is a facility that is driving some the highest risks in the new NATA that is going to be released this month. The risk is driven by an updated risk number for a unique chemical at this facility.

Sent from my iPhone

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From: "Blevins, John" <Blevins.John@epa.gov>
Date: December 4, 2015 at 7:27:35 AM CST
To: "Thompson, Steve" <thompson.steve@epa.gov>, "Overbay, Connie" <Overbay.Connie@epa.gov>
Cc: "Gilrein, Stephen" <gilrein.stephen@epa.gov>, "Yurk, Jeffrey" <yurk.jeffrey@epa.gov>
Subject: Fwd: DuPont LaPlace LA Action Plan Chloroprene DRAFT Dec 3 2015.docx

FYI. See action plan. We have some items to work on. Please see if you can set up a call/mtg early next week with OHSA contacts to bring them up to speed.

Also reach out to HQ and get status update on their settlement discussion with DuPont. Does it include this facility?

Connie- can you please pull together inspection and enforcement history (all programs) for the facility. Hopefully you can include state actions in summary.

Thanks

John

Sent from my iPhone

Begin forwarded message:

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> **Date:** December 3, 2015 at 5:26:34 PM EST
> **To:** "Blevins, John" <Blevins.John@epa.gov>, "Seager, Cheryl" <Seager.Cheryl@epa.gov>, "Edlund, Carl" <Edlund.Carl@epa.gov>, "Garcia, David" <Garcia.David@epa.gov>, "Gilrein, Stephen" <gilrein.stephen@epa.gov>, "Gray, David" <gray.david@epa.gov>, "Harrison, Ben" <Harrison.Ben@epa.gov>, "Hill, Troy" <Hill.Troy@epa.gov>, "Honker, William" <honker.william@epa.gov>, "McDonald, James" <McDonald.James@epa.gov>, "Phillips, Pam" <phillips.pam@epa.gov>, "Smith, Rhonda" <smith.rhonda@epa.gov>, "Taheri, Diane" <Taheri.Diane@epa.gov>, "Blanco, Arturo" <Blanco.Arturo@epa.gov>, "Coleman, Sam" <Coleman.Sam@epa.gov>, "Curry, Ron" <Curry.Ron@epa.gov>
> **Cc:** "Crossland, Ronnie" <Crossland.Ronnie@epa.gov>, "Yurk, Jeffrey" <yurk.jeffrey@epa.gov>, "Johnson, Lydia" <johnson.lydia@epa.gov>, "Verhalen, Frances" <verhalen.frances@epa.gov>, "Hansen, Mark" <Hansen.Mark@epa.gov>, "Casso, Ruben" <Casso.Ruben@epa.gov>, "Anderson, Israel" <Anderson.Israel@epa.gov>, "Runnels, Charlotte" <Runnels.Charlotte@epa.gov>, "Brown, Jamesr" <brown.jamesr@epa.gov>, "McGee, Tomika" <McGee.Tomika@epa.gov>
> **Subject: DuPont LaPlace LA Action Plan Chloroprene DRAFT Dec 3 2015.docx**
>
> All, here is the framework for the Action Plan we developed this afternoon. I added an OEJTA category with several items that we discussed and

seemed important. Please input your program information. Add anything you think is missing.

David, Arturo, I did not include the Communications Plan in this file since it is different from the action plan.

I am sending to DD/Deputies and cc'd a few others that may be tapped for input. Share with your folks as needed.

<u>Instructions:</u>

DO NOT add any formatting. Insert your information using Times Roman 12, single line formatting.

Find your header and topic, then insert your story and information.

One submission from each division.

I will try to get this posted on a sharepoint for future editing, but for now, please get your input to me and copy Tomika McGee ASAP.

Thanks

Chloroprene releases and waste management, 2010 - 2014 (in lbs.)

DuPont Performance Elastomers LLC Pontchartrain Site
TRI ID# = 70068DPNTD560HW
Primary NAICS Code = 325212 - Synthetic rubber manufacturing
Regularly reported chloroprene, 2011 was final year to report to TRI.

Form R element
5.1 Fugitive or non-point air
5.2 Stack or point air
5.3 Discharges to streams/water bodies
5.4.1 Underground injection onsite
6.1 POTW
6.2 Transfers to offsite locations
7.A On-site waste treatment methods
7.B On-site energy recovery processes
Source Reduction & Recycling Activities
8.1.a Onsite disp - UI wells, RCRA landfills, etc.
8.1.b Onsite disp/releases
8.1.c Offsite disp - UI wells, RCRA landfills, etc.
8.1.d Other offsite disp
8.2 Energy recovery onsite
8.5 Recycled offsite
8.6 Quantity treated onsite
8.7 Quantity treated offsite
8.9 Production ratio

Chloroprene is manufactured and processed.
Maximum amount of chloroprene on-site during the calendar year is 1,000,000 to 9,999,999 lbs.

DuPont Ponchartrain Works
TRI ID# = 70069DPNTPHIGHW
Primary NAICS Code = 325110 - Petrochemical manufacturing
Started reporting chloroprene in 2012.

Elastomers	Elastomers	Works	Works
2010	**2011**	**2012**	**2013**
5,465	5,568	21,278	12,000
263,815	254,700	228,452	240,000
240	87	85	84
5,800	7,555	11,402	6,100
5,150 (M50); 6,216 (M50); 29,804 (M50)	8,100 (M50); 6,392 (M50)	2,465 (M50); 458 (M64); 43 (M50)	1 (M64/P91); 290 (M50); 1,839 (M50)
Incineration, condenser, flare, scrubber	Incineration, condenser, flare, scrubber	Incineration, condenser, flare, scrubber	Condenser, flare, scrubber
NA	NA	NA	Industrial furnace
5,800	7,555	11,402	6,100
269,520	260,355	249,815	252,084
NA	NA	458	1
NA	NA	NA	540,103
3,025,770	2,315,793	2,134,886	1,782,902
41,170	14,492	2,508	2,129
1.79	0.96	0.89	0.99

Works
2014
12,000
250,000
88
3,400
4 (M64/P91); 3,055 (M50); 111 (M50)
Condenser, flare, scrubber
Industrial furnace
3,400
262,088
4
510,000
1,800,000
3,166
1

M64 - other landfills

M50 - incineration/thermal treatment

Message

From: Osbourne, Margaret [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=FA81D13BB18F4249AAB3E3B61275D58B-OSBOURNE, MARGARET]
Sent: 12/4/2015 2:42:08 PM
To: Thompson, Steve [thompson.steve@epa.gov]
Subject: RE: DuPont LaPlace LA Action Plan Chloroprene DRAFT Dec 3 2015.docx

Okay. I'll get a status from OECA on their DuPont case. It does not include this LaPlace facility – it only includes Orange and La Porte, TX.

Margaret Osbourne
Chief, Air Toxics Section
Compliance Assurance & Enforcement Division
EPA Region 6
1445 Ross Avenue (6EN-AT)
Dallas, TX 75202
214-665-6508

From: Thompson, Steve
Sent: Friday, December 04, 2015 8:12 AM
To: Osbourne, Margaret
Subject: Fwd: DuPont LaPlace LA Action Plan Chloroprene DRAFT Dec 3 2015.docx

Lets talk on Monday. This is a facility that is driving some the highest risks in the new NATA that is going to be released this month. The risk is driven by an updated risk number for a unique chemical at this facility.

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> **Subject: Fwd: DuPont LaPlace LA Action Plan Chloroprene DRAFT Dec 3 2015.docx**
>
> FYI. See action plan. We have some items to work on. Please see if you can set up a call/mtg early next week with OHSA contacts to bring them up to speed.
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> Also reach out to HQ and get status update on their settlement discussion with DuPont. Does it include this facility?

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Cc: "Crossland, Ronnie" <Crossland.Ronnie@epa.gov>, "Yurk, Jeffrey" <yurk.jeffrey@epa.gov>, "Johnson, Lydia" <johnson.lydia@epa.gov>, "Verhalen, Frances" <verhalen.frances@epa.gov>, "Hansen, Mark" <Hansen.Mark@epa.gov>, "Casso, Ruben" <Casso.Ruben@epa.gov>, "Anderson, Israel" <Anderson.Israel@epa.gov>, "Runnels, Charlotte" <Runnels.Charlotte@epa.gov>, "Brown, Jamesr" <brown.jamesr@epa.gov>, "McGee, Tomika" <McGee.Tomika@epa.gov>
Subject: DuPont LaPlace LA Action Plan Chloroprene DRAFT Dec 3 2015.docx

All, here is the framework for the Action Plan we developed this afternoon. I added an OEJTA category with several items that we discussed and seemed important. Please input your program information. Add anything you think is missing.

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I am sending to DD/Deputies and cc'd a few others that may be tapped for input. Share with your folks as needed.

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One submission from each division.

I will try to get this posted on a sharepoint for future editing, but for now, please get your input to me and copy Tomika McGee ASAP.

Thanks

Message

From: Rimer, Kelly [Rimer.Kelly@epa.gov]
Sent: 12/18/2015 9:00:54 PM
To: Patrick Walsh [patrick-a-walsh@denka-pe.com]
Subject: Re: Contact information

Sounds good Patrick. I'll check about availability Monday, but it may be that the following week would work out better.
Kelly

Kelly Rimer
Leader, Air Toxics Assessment Group
US EPA
Office of Air Quality Planning and Standards
109 TW Alexander Drive
RTP. NC 27709

On Dec 18, 2015, at 2:43 PM, Patrick Walsh <patrick-a-walsh@denka-pe.com> wrote:

> Hello Kelly,
>
> Thanks for reaching out to me yesterday.
>
> I am really interested in speaking with your epidemiologist as we discussed and I'm glad you all are willing to take the time to chat with me. My contact information is below, please feel free to use at your convenience. I am free anytime Monday after 11:00 CST. If we miss that, we could try again when I return to work on 12/29.
>
> Thanks, and talk to you soon!

Patrick A. Walsh, CIH | SHE/PSM Manager
Denka Performance Elastomer LLC
560 Highway 44 | LaPlace, LA 70068
Office: 985-536-5731 | Cell: 251-321-5989
patrick-a-walsh@denka-pe.com

Message

From: Gray, David [gray.david@epa.gov]
Sent: 11/30/2015 1:49:15 PM
To: Smith, Darcie [Smith.Darcie@epa.gov]; Bremer, Kristen [Bremer.Kristen@epa.gov]; Rimer, Kelly [Rimer.Kelly@epa.gov]
CC: Noonan, Jenny [Noonan.Jenny@epa.gov]
Subject: Enforcement Sensitive - NATA

All – Here is a copy of materials which may contain enforcement sensitive information. Please handle accordingly.

I heard back from most programs, including the 3 biggies (Air, RCRA, Water). There are no pending enforcement actions/issues for this facility. We were not able to contact the states in this short timeframe, but the ECHO reports include state inspections and enforcement actions (last 5 years), it just doesn't capture and pending issues/enforcement for the States.

Historic information from ECHO (5-year Federal and State) for Dupont Performance Elastomers and Dupont Pontchartrain Works. Attached are the ECHO reports

ECHO FINDINGS (5-year History):

DuPont Pontchartrain Works:

- HPV/SNC: No
- Last EPA Inspection: CAA PCE Off-Site on 1/22/2015.
- Rest of the inspections were all conducted by the State. (last 5 years)
- EPA Enforcement: none in last 5 years
- State Enforcement: CWA Non Penalty AOs on 5/13/2011 and 11/23/2010

DuPont Performance Elastomers:

- HPV/SNC: No
- No EPA inspections in last 5 year. All State inspections
- EPA Enforcement: none in last 5 years
- State Enforcement: CAA Administrative order, no penalty on 9/26/2013

Appointment

From: Stenger, Wren [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=C109285F44B14F70A224BE41AB99E9E2-STENGER, WREN]
Sent: 12/10/2015 2:00:13 PM
To: Tsirigotis, Peter [Tsirigotis.Peter@epa.gov]

Subject: Accepted: Discuss Region 6 Action Plan Regarding Chloroprene Issue at Denka
Location: RTP-OAQPS-D210A-SPPD-IO-only/RTP-OAQPS-BLDG-D/Restricted; RTP-OAQPS-919-541-4332-SPPD/Phone-Line/RTP-OAQPS-BLDG-C

Start: 12/10/2015 6:30:00 PM
End: 12/10/2015 7:00:00 PM
Show Time As: Busy

Message

From: Robinson, Jeffrey [Robinson.Jeffrey@epa.gov]
Sent: 12/15/2015 3:40:28 PM
To: Stenger, Wren [stenger.wren@epa.gov]; Honker, William [honker.william@epa.gov]; Brown, Jamesr [brown.jamesr@epa.gov]; Yurk, Jeffrey [yurk.jeffrey@epa.gov]; Thompson, Steve [thompson.steve@epa.gov]
Subject: RE: DuPont LaPlace LA Action Plan Chloroprene DRAFT Dec 14 2015.docx
Attachments: DuPont Action Plan with Dec 14 AB as base with PEL Comments and R6MM-AP comments Dec 15 2015.docx

Wren,

We quickly reviewed and are suggesting edits and we've responded to comments in the document in conjunction with our suggested edits and clarifications.

Jeff

From: Stenger, Wren
Sent: Monday, December 14, 2015 4:38 PM
To: Honker, William; Brown, Jamesr; Yurk, Jeffrey; Thompson, Steve; Robinson, Jeffrey
Subject: FW: DuPont LaPlace LA Action Plan Chloroprene DRAFT Dec 14 2015.docx

Hey, Arturo sent some comments and I need your review/decision whether to change the write-ups. Please advise.

WREN STENGER
Director
Multimedia Planning and Permitting Division
EPA Region 6 Dallas, Texas
214.665.6583

From: Blanco, Arturo
Sent: Monday, December 14, 2015 4:20 PM
To: Stenger, Wren
Subject: RE: DuPont LaPlace LA Action Plan Chloroprene DRAFT Dec 14 2015.docx

Wren,

Thank you, Wren. After we talked, I inserted some additional comments/questions (attached).

Arturo

Arturo J. Blanco
Director
Office of Environmental Justice, Tribal and International Affairs
US EPA Region 6
1445 Ross Avenue (6RA-DA)
Dallas, TX 75202
214.665.3182 (o)
214.531.8629 (m)

From: Stenger, Wren
Sent: Monday, December 14, 2015 1:26 PM
To: Blanco, Arturo
Subject: FW: DuPont LaPlace LA Action Plan Chloroprene DRAFT Dec 14 2015.docx

Arturo, I hit sent and realized I left you off the email. Sorry.

WREN STENGER
Director
Multimedia Planning and Permitting Division
EPA Region 6 Dallas, Texas
214.665.6583

From: Stenger, Wren
Sent: Monday, December 14, 2015 1:25 PM
To: Curry, Ron; Coleman, Sam; Ruiz, Thomas; Gray, David
Subject: DuPont LaPlace LA Action Plan Chloroprene DRAFT Dec 14 2015.docx

Based on our discussions this morning, I edited the first page of our action plan to emphasize that NATA provides estimates and potential risk that must be further investigated. See if this improves the story for the community.

Message

From: Stenger, Wren [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=C109285F44B14F70A224BE41AB99E9E2-STENGER, WREN]
Sent: 12/14/2015 9:52:54 PM
To: Casso, Ruben [Casso.Ruben@epa.gov]
Subject: RE: DuPont LaPlace LA Action Plan Chloroprene DRAFT Dec 14 2015.docx

Yes. That is what it needed. Thanks

WREN STENGER
Director
Multimedia Planning and Permitting Division
EPA Region 6 Dallas, Texas
214.665.6583

From: Casso, Ruben
Sent: Monday, December 14, 2015 2:43 PM
To: Stenger, Wren
Subject: RE: DuPont LaPlace LA Action Plan Chloroprene DRAFT Dec 14 2015.docx

Edited first page text as requested.

From: Stenger, Wren
Sent: Monday, December 14, 2015 1:25 PM
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Sent: 12/14/2015 7:25:07 PM
To: Curry, Ron [Curry.Ron@epa.gov]; Coleman, Sam [Coleman.Sam@epa.gov]; Ruiz, Thomas [Ruiz.Thomas@epa.gov]; Gray, David [gray.david@epa.gov]
BCC: Hansen, Mark [Hansen.Mark@epa.gov]; Casso, Ruben [Casso.Ruben@epa.gov]; Verhalen, Frances [verhalen.frances@epa.gov]
Subject: DuPont LaPlace LA Action Plan Chloroprene DRAFT Dec 14 2015.docx
Attachments: DuPont LaPlace LA Action Plan Chloroprene DRAFT Dec 14 2015.docx

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Sent: 12/17/2015 10:11:58 PM
To: Luthans, William [luthans.william@epa.gov]
Subject: DuPont LaPlace LA Action Plan Chloroprene DRAFT Dec 16 2015.docx
Attachments: DuPont LaPlace LA Action Plan Chloroprene DRAFT Dec 16 2015.docx

This is the draft. FYI

Message

From: Stenger, Wren [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=C109285F44B14F70A224BE41AB99E9E2-STENGER, WREN]
Sent: 12/14/2015 3:45:59 PM
To: Greiner, Diana [Greiner.Diana@epa.gov]; Hanson, Mark [hanson.mark@epa.gov]
CC: Spalding, Susan [Spalding.Susan@epa.gov]; Smith, Melissa [Smith.Melissa@epa.gov]; Verhalen, Frances [verhalen.frances@epa.gov]
Subject: RE: DuPont LaPlace, LA

Thanks

WREN STENGER
Director
Multimedia Planning and Permitting Division
EPA Region 6 Dallas, Texas
214.665.6583

From: Greiner, Diana
Sent: Monday, December 14, 2015 9:22 AM
To: Stenger, Wren; Hanson, Mark
Cc: Spalding, Susan; Smith, Melissa; Verhalen, Frances
Subject: RE: DuPont LaPlace, LA

Wren,

My apologies. Here is an updated map. The last one had a school that did not exist to the east of the facility.

Diana

From: Greiner, Diana
Sent: Monday, December 14, 2015 9:11 AM
To: Stenger, Wren; Hanson, Mark
Cc: Spalding, Susan; Smith, Melissa; Smith, Melissa; Verhalen, Frances
Subject: DuPont LaPlace, LA

Wren,

Here is the map of DuPont Laplace, LA with the nearby schools. I am still working to get the daycares in place. Please let me know if you need anything else.

Thanks,

Diana

Diana Greiner
Life Scientist
RCRA Support
U.S. EPA, Region 6
(214) 665 - 6492
greiner.diana@epa.gov

Message

From:	Stenger, Wren [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=C109285F44B14F70A224BE41AB99E9E2-STENGER, WREN]
Sent:	12/11/2015 9:42:21 PM
To:	Gray, David [gray.david@epa.gov]; Coleman, Sam [Coleman.Sam@epa.gov]; Blevins, John [Blevins.John@epa.gov]; Edlund, Carl [edlund.carl@epa.gov]; McDonald, James [McDonald.James@epa.gov]; Curry, Ron [Curry.Ron@epa.gov]; Arturo Blanco (Blanco.Arturo@epa.gov) [Blanco.Arturo@epa.gov]; Tsirigotis, Peter [Tsirigotis.Peter@epa.gov]; Page, Steve [Page.Steve@epa.gov]; Koerber, Mike [Koerber.Mike@epa.gov]
Subject:	Chloroprene DuPont Denka

Dow and DuPont completed negotiations for a merger as of today, according to the business news channels.

WREN STENGER
Director
Multimedia Planning and Permitting Division
EPA Region 6 Dallas, Texas
214.665.6583

Message

From: Stenger, Wren [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=C109285F44B14F70A224BE41AB99E9E2-STENGER, WREN]
Sent: 12/8/2015 7:37:41 PM
To: McGee, Tomika [McGee.Tomika@epa.gov]
Subject: FW: Young, Carl has shared 'DuPont LaPlace LA Action Plan Chloroprene Dec 3 2015'

WREN STENGER
Director
Multimedia Planning and Permitting Division
EPA Region 6 Dallas, Texas
214.665.6583

From: Young, Carl
Sent: Friday, December 04, 2015 9:20 AM
To: McGee, Tomika; Hansen, Mark; Verhalen, Frances; Casso, Ruben; Robinson, Jeffrey; Mohr, Ashley; Braganza, Bonnie; Stenger, Wren; Parker, Cindy
Cc: Young, Carl
Subject: Young, Carl has shared 'DuPont LaPlace LA Action Plan Chloroprene Dec 3 2015'

I added the draft DuPont Pontchartrain Works action plan to our Division sharepoint site for editing.

Jeff, Ashley and Bonnie - Bonnie gave me some information and I took a stab at editing the petition part of the plan.

Open DuPont LaPlace LA Action Plan Chloroprene Dec 3 2015.docx

See more related to Young, Carl in Delve.

Message

From: Stenger, Wren [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=C109285F44B14F70A224BE41AB99E9E2-STENGER, WREN]
Sent: 12/8/2015 7:42:15 PM
To: McGee, Tomika [McGee.Tomika@epa.gov]
Subject: FW: Young, Carl has shared 'DuPont LaPlace LA Action Plan Chloroprene Dec 3 2015'
Attachments: DuPont LaPlace LA Action Plan Chloroprene Dec 3 2015.docx

WREN STENGER
Director
Multimedia Planning and Permitting Division
EPA Region 6 Dallas, Texas
214.665.6583

From: Young, Carl
Sent: Friday, December 04, 2015 4:44 PM
To: Stenger, Wren; Hansen, Mark
Cc: Verhalen, Frances; Robinson, Jeffrey; Mohr, Ashley; Braganza, Bonnie; Casso, Ruben
Subject: RE: Young, Carl has shared 'DuPont LaPlace LA Action Plan Chloroprene Dec 3 2015'

Wren and Mark,

Attached is the file I downloaded from sharepoint.

Carl

Carl Young
EPA Region 6 Ozone and Infrastructure Section
(214) 665-6645

From: Stenger, Wren
Sent: Friday, December 04, 2015 10:25 AM
To: Young, Carl
Subject: RE: Young, Carl has shared 'DuPont LaPlace LA Action Plan Chloroprene Dec 3 2015'

Until I get on sp, send it on email to me. Thanks

Sent from my Windows Phone

From: Young, Carl
Sent: 12/4/2015 9:20 AM
To: McGee, Tomika; Hansen, Mark; Verhalen, Frances; Casso, Ruben; Robinson, Jeffrey; Mohr, Ashley; Braganza, Bonnie; Stenger, Wren; Parker, Cindy
Cc: Young, Carl
Subject: Young, Carl has shared 'DuPont LaPlace LA Action Plan Chloroprene Dec 3 2015'

I added the draft DuPont Pontchartrain Works action plan to our Division sharepoint site for editing.

Jeff, Ashley and Bonnie - Bonnie gave me some information and I took a stab at editing the petition part of the plan.

Open DuPont LaPlace LA Action Plan Chloroprene Dec 3 2015.docx

See more related to Young, Carl in Delve.

Message

From: Stenger, Wren [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=C109285F44B14F70A224BE41AB99E9E2-STENGER, WREN]
Sent: 12/8/2015 2:06:49 PM
To: Overbay, Connie [Overbay.Connie@epa.gov]
Subject: RE: DuPont LaPlace LA Action Plan Chloroprene DRAFT Dec 3 2015.docx

Thanks Connie. I sent John a note late yesterday inquiring also.

WREN STENGER
Director
Multimedia Planning and Permitting Division
EPA Region 6 Dallas, Texas
214.665.6583

From: Overbay, Connie
Sent: Tuesday, December 08, 2015 7:53 AM
To: Stenger, Wren
Subject: RE: DuPont LaPlace LA Action Plan Chloroprene DRAFT Dec 3 2015.docx

Not yet. Steve Gilrein told me to go ahead and send you the Inspection and Enforcement history information. I'll talk to Steve Gilrein and Steve Thompson to see what they can do on those parts.

Thank you,
Connie M. Overbay
Enforcement Coordinator (6EN)
Compliance Assurance and Enforcement Div.
Region 6
(214) 665-7274
(214) 665-7446 (fax)

From: Stenger, Wren
Sent: Monday, December 07, 2015 5:00 PM
To: Overbay, Connie
Subject: RE: DuPont LaPlace LA Action Plan Chloroprene DRAFT Dec 3 2015.docx

Thanks. Anything for OSHA and NIOSH?

WREN STENGER
Director
Multimedia Planning and Permitting Division
EPA Region 6 Dallas, Texas
214.665.6583

From: Overbay, Connie
Sent: Monday, December 07, 2015 12:26 PM
To: Stenger, Wren

Cc: McGee, Tomika; Blevins, John; Gilrein, Stephen; Thompson, Steve; Yurk, Jeffrey; Gray, David
Subject: RE: DuPont LaPlace LA Action Plan Chloroprene DRAFT Dec 3 2015.docx

Wren: I have inserted the Inspection and Enforcement history into the document. This includes both EPA and State activities.

See attached.
Also attached is the ECHO report (FYI only).

Thank you,
Connie M. Overbay
Enforcement Coordinator (6EN)
Compliance Assurance and Enforcement Div.
Region 6
(214) 665-7274
(214) 665-7446 (fax)

From: Blevins, John
Sent: Friday, December 04, 2015 7:28 AM
To: Thompson, Steve; Overbay, Connie
Cc: Gilrein, Stephen; Yurk, Jeffrey
Subject: Fwd: DuPont LaPlace LA Action Plan Chloroprene DRAFT Dec 3 2015.docx

FYI. See action plan. We have some items to work on. Please see if you can set up a call/mtg early next week with OHSA contacts to bring them up to speed.

Also reach out to HQ and get status update on their settlement discussion with DuPont. Does it include this facility?

Connie- can you please pull together inspection and enforcement history (all programs) for the facility. Hopefully you can include state actions in summary.

Thanks

John

Sent from my iPhone

Begin forwarded message:

> **From:** "Stenger, Wren" <stenger.wren@epa.gov>
> **Date:** December 3, 2015 at 5:26:34 PM EST
> **To:** "Blevins, John" <Blevins.John@epa.gov>, "Seager, Cheryl" <Seager.Cheryl@epa.gov>, "Edlund, Carl" <Edlund.Carl@epa.gov>, "Garcia, David" <Garcia.David@epa.gov>, "Gilrein, Stephen" <gilrein.stephen@epa.gov>, "Gray, David" <gray.david@epa.gov>, "Harrison, Ben" <Harrison.Ben@epa.gov>, "Hill, Troy" <Hill.Troy@epa.gov>, "Honker, William" <honker.william@epa.gov>, "McDonald, James" <McDonald.James@epa.gov>, "Phillips, Pam" <phillips.pam@epa.gov>, "Smith, Rhonda" <smith.rhonda@epa.gov>, "Taheri, Diane" <Taheri.Diane@epa.gov>, "Blanco, Arturo" <Blanco.Arturo@epa.gov>, "Coleman, Sam" <Coleman.Sam@epa.gov>, "Curry, Ron" <Curry.Ron@epa.gov>
> **Cc:** "Crossland, Ronnie" <Crossland.Ronnie@epa.gov>, "Yurk, Jeffrey" <yurk.jeffrey@epa.gov>, "Johnson, Lydia" <johnson.lydia@epa.gov>, "Verhalen, Frances" <verhalen.frances@epa.gov>, "Hansen, Mark" <Hansen.Mark@epa.gov>, "Casso, Ruben" <Casso.Ruben@epa.gov>, "Anderson, Israel" <Anderson.Israel@epa.gov>, "Runnels, Charlotte" <Runnels.Charlotte@epa.gov>, "Brown, Jamesr"

<brown.jamesr@epa.gov>, "McGee, Tomika" <McGee.Tomika@epa.gov>
Subject: DuPont LaPlace LA Action Plan Chloroprene DRAFT Dec 3 2015.docx

All, here is the framework for the Action Plan we developed this afternoon. I added an OEJTA category with several items that we discussed and seemed important. Please input your program information. Add anything you think is missing.

David, Arturo, I did not include the Communications Plan in this file since it is different from the action plan.

I am sending to DD/Deputies and cc'd a few others that may be tapped for input. Share with your folks as needed.

Instructions:

DO NOT add any formatting. Insert your information using Times Roman 12, single line formatting.

Find your header and topic, then insert your story and information.

One submission from each division.

I will try to get this posted on a sharepoint for future editing, but for now, please get your input to me and copy Tomika McGee ASAP.

Thanks

Cancer Mortality among Moscow Shoe Workers Exposed to Chloroprene (Russia)
Author(s): Mariana A. Bulbulyan, Oxana V. Changuina, David G. Zaridze, Sergey V. Astashevsky, Didier Colin, Paolo Boffetta
Source: *Cancer Causes & Control*, Vol. 9, No. 4 (Aug., 1998), pp. 381-387
Published by: Springer
Stable URL: http://www.jstor.org/stable/3553431
Accessed: 23/12/2009 09:19

ED_004307_00025793-00001

Cancer mortality among Moscow shoe workers exposed to chloroprene (Russia)

Mariana A. Bulbulyan, Oxana V. Changuina, David G. Zaridze, Sergey V. Astashevsky, Didier Colin, and Paolo Boffetta

(Received 5 December 1997; accepted in revised form 23 February 1998)

Objectives: To assess the risk of cancer among workers of a Moscow (Russia) shoe factory exposed to chloroprene (2-chloro-1,3-butadiene) (CP).
Methods: This is a retrospective cohort mortality study among 5,185 shoe manufacturing workers employed between 1940 and 1976, and followed from 1979 through 1993. Exposure to CP was assessed by linking the job history with industrial hygiene data. We calculated standardized mortality ratios (SMR) using the Moscow population as reference, and conducted an internal comparison analysis based on Poisson regression modeling.
Results: For the entire cohort, all-cause mortality was close to expectation and all-cancer mortality was increased. There was an increase in the mortality from liver cancer (SMR = 2.4, 95 percent confidence interval [CI] = 1.1-4.3), kidney cancer (SMR = 1.8, CI = 0.9-3.4), and leukemia (SMR = 1.9, CI = 1.0-3.3). Mortality from liver cancer and leukemia was associated with various indicators of CP exposure. A similar, although less consistent, pattern was found for kidney cancer mortality; while for the remaining neoplasms, no association was suggested with CP exposure.
Conclusions: The association between CP exposure and risk of leukemia may be due to concomitant exposure to benzene. The results for liver cancer point towards a carcinogenic effect of CP. *Cancer Causes and Control* 1998, 9, 381–387

Key words: Cancer mortality, chloroprene, Russia, shoe workers.

Introduction

Workers in boot and shoe manufacturing and repair are at increased risk of cancer.[1] Exposure to leather dust and benzene is responsible for development of sinonasal cancer and leukemia;[1] other carcinogens, however, also may play a role. Chloroprene (2-chloro-1,3-butadiene) (CP) is used mainly in the manufacturing of the synthetic rubber, polychloroprene. The liquid polymer (polychloroprene latex) and polychloroprene glue find applications in shoe manufacture. The chemical structure of CP is similar to that of vinyl chloride.[2] CP exerts embryotoxic, teratogenic, and mutagenic effects;[2] results of experimental studies are inadequate to evaluate its carcinogenicity.[3-5]

The evidence from epidemiologic studies of carcinogenicity in humans is controversial.[2,6] In particular, a study from China[7] has shown a significant excess of

Drs Bulbulyan, Changuina, Zaridze, and Astashevsky are with the Department of Epidemiology and Prevention, Institute of Carcinogenesis, RAMS Cancer Research Centre, Moscow, Russia. Mr Colin and Dr Boffetta are with the Unit of Environmental Cancer Epidemiology, International Agency for Research on Cancer, Lyon, France. Address correspondence to Dr Boffetta, IARC, 150 Cours Albert-Thomas, 69372 Lyon cedex 08, France. *Part of the analysis of this study was undertaken by Dr Changuina at the International Agency for Research on Cancer during the tenure of an International Cancer Technology Transfer (ICRETT) fellowship of the International Union Against Cancer.*

neoplasms of the liver, lung, and lymphatic system in maintenance mechanics with heavy exposure to CP. We recently conducted a study of workers employed in a CP production site in Armenia[8] among whom we found an increased risk of liver cancer.

This historical cohort study was conducted in a shoe factory in Moscow, Russia, to examine cancer mortality of shoe workers exposed to CP from polychloroprene latex and glue.

Materials and methods

The study comprised a total of 5,185 workers (4,569 women and 616 men) who were employed for at least two years in the period 1960-76. The cohort was followed up during 1979-93 and contributed 70,328 person-years of observation (7,836 among men and 62,492 among women). A total of 131 workers (2.5 percent) were lost to follow-up.

The workers of the following production departments were included in the cohort: cutting; fitting; lasting and making; and finishing. Workers employed in auxiliary departments (*e.g.*, caretakers) and management employees were excluded. For all members of the cohort, work histories were collected from the records of the Personnel Department. Information included surname, name, patronymic (father's name), gender, date and place of birth, address, and information on all jobs and departments of employment, including dates of start and end of each period of employment. The vital status of workers was identified for the period 1988-93 from the Central Address Bureau of Moscow and for the period 1979-87 from the National Registry Office Card Index. The death certificates of those who died were obtained from the latter source. The causes of death for deceased workers were abstracted from the death certificates and were classified according to ICD-9.[9]

CP was used during the entire study period. Workers were divided into three groups with different exposure to CP, based on their job titles and departments of employment and on industrial hygiene data from the 1970s[10] (Table 1). The group at high CP exposure included gluers, who were exposed directly to CP; the group at medium CP exposure included workers who had no direct contact with CP but were in the same departments as gluers; finally, a group of workers without exposure to CP served as a control group for internal comparison analyses. This group contributed 26,063 person-years of observation (37 percent of the total). The available information on CP exposure is not systematic; it refers to different years and different workplaces. Therefore, a direct use of CP exposure-measurement data was not possible. We calculated a cumulative index of CP exposure by assigning exposure units of 0, 1, and 10 to the three groups in Table 1 and summing up for each worker the units accumulated during each year of employment, taking changes of job and department into account. Workers were also classified according to the category at highest exposure.

Standardized mortality ratios (SMR) for different causes of death were calculated for the entire cohort and for various groups by time since first exposure, duration of employment, and age at first exposure. The mortality of the Moscow population during 1979-93 was used as reference for all causes, all cancers, and most cancer sites. For five cancer sites – liver, pancreas, mediastinum and heart, kidney, and bladder – reference mortality rates were available only for the years 1992-93. Therefore, for these sites, the 1992 rates were used to calculate the expected numbers of deaths for the whole period of observation. The 95 percent confidence intervals (CI) were calculated under the assumption of Poisson distribution.[11] We also estimated the relative risks (RR) for selected neoplasms according to CP exposure by fitting multivariate Poisson regression models. RRs were adjusted for gender, age, and calendar period of follow-up. The Mantel-extension test was used to test for trends in the RR with exposure, using category ranks as the quantitative trend variable.[12] All tests for linear trends were two-sided. The statistical package STATA was used.[13]

Results

The mortality from all causes combined was close to expected (900 deaths, SMR = 1.03, CI = 0.97-1.10); the

Table 1. Assessment of chloroprene (CP) exposure, Moscow shoe factory workers

CP exposure group	Department, job	CP levels during 1970s (mg/m^3)[10]	Co-exposures[10]
High	Finishing, gluer	20	Benzene in the 1950s (6-20 ppm), ethylacetate and other solvents
Medium	Finishing, other than gluer Lasting and making, all jobs	0.4-1	Formaldehyde, ethylacetate, butylacetate, ethyleneglycol, acetone, chlorotrifluoromethane, leather dust
No exposure	Cutting, all jobs Fitting, all jobs	0	Leather dust (6.5-12 mg/m^3)

number of deaths from all malignant neoplasms was higher than expected (265 deaths, SMR = 1.22, CI = 1.07-1.37). Overall and all-cancer mortality was higher in men than in women. Table 2 presents the results for individual cancer sites with at least five observed or expected deaths larger than five. Mortality from liver cancer and leukemia was increased in the cohort. Lung cancer mortality was increased in men but not in women. Nonsignificant increases were seen for kidney cancer in both genders, for brain and central nervous system (CNS) neoplasms in women, and for pancreatic cancer in men. In addition, one death from rhabdomyosarcoma of the heart and one from malignant neoplasm of mediastinum were recorded in women: these diagnoses fall into the ICD-9 category 164, for which the expected figure was 0.22 (SMR = 9.3, CI = 1.1-33). Both women started to work in the shoe factory at a young age and worked for more than 20 years; one of them was not exposed to CP and the other one belonged to the group at medium CP exposure. Three deaths from bladder cancer occurred in men (SMR = 2.1, CI = 0.4-6.1).

In the internal comparison analysis restricted to all causes, all cancers and cancers with at least 10 observed deaths, workers exposed to CP had a 13 percent higher mortality than unexposed workers: the increase was statistically significant for workers exposed to high CP levels (Table 3). A fourfold increased risk among exposed workers was seen for liver cancer, with workers with high CP exposure having a relative risk of five: there was, however, only one death in the group of workers not exposed to CP, which limits the precision of the risk estimates. A similar increased risk was seen for kidney cancer, without, however, any suggestion of a dose-response relation. Colon cancer mortality was increased only among workers at high CP exposure. Little overall increase in leukemia risk was seen among CP-exposed workers; the group at high CP exposure, however, experienced a twofold increase compared with unexposed workers. Mortality from other neoplasms, notably from pancreatic and lung cancers, was not increased in CP-exposed workers compared with unexposed workers.

The analysis for selected cancers by duration of employment in jobs with high CP exposure is shown in Table 4. Despite the small number of deaths, a trend was present for mortality from liver cancer and leukemia, while no such trend was suggested for pancreatic and lung cancers. The analysis by estimated cumulative exposure (Table 5) provided results similar to those of the other approaches. A strong increase in liver cancer risk was found above 10 unit-years, with no clear trend above that level, and inaccurate estimates of risk. The risk of kidney cancer was elevated in all categories, without a suggestion of a trend, while workers in the group with highest CP exposure had the highest risk of

Table 2. Mortality from selected neoplasms among shoe manufacture workers in Moscow

Cause of death	ICD–9[9] code	Men and women			Women			Men		
		Obs[a]	SMR[b]	(CI)[c]	Obs[a]	SMR[b]	(CI)[c]	Obs	SMR[b,d]	(CI)[c]
All causes of death	001-999	900	1.03	(0.97-1.10)	719	1.00	(0.93-10.7)	181	1.21	(1.04-1.40)
All malignant neoplasms	140-208	265	1.22	(1.07-1.37)	209	1.15	(1.00-1.31)	56	1.58	(1.19-2.05)
Stomach cancer	151	48	1.2	(0.9-1.6)	37	1.1	(0.8-1.5)	11	1.5	(0.7-2.7)
Colon cancer	153	21	1.1	(0.7-1.7)	16	0.9	(0.5-1.5)	5	2.3	(0.7-5.3)
Rectum cancer	154	14	1.1	(0.6-1.9)	13	1.2	(0.6-2.1)	1	0.6	(0.02-3.4)
Liver cancer[e]	155	10	2.4	(1.1-4.3)	8	2.3	(1.0-4.6)	2	2.4	(0.3-8.6)
Pancreas cancer[e]	157	12	1.1	(0.5-1.8)	8	0.9	(0.4-1.7)	4	2.0	(0.5-5.0)
Lung cancer	162	31	1.4	(0.9-2.0)	14	1.1	(0.6-1.9)	17	1.7	(1.0-2.7)
Breast cancer	174,175	33	1.1	(0.7-1.5)	33	1.1	(0.7-1.5)	0	[0.06]	(0-63)
Cervical cancer	180	9	1.3	(0.6-2.5)	9	1.3	(0.6-2.5)	—	—	—
Endometrial cancer	179,182	7	1.0	(0.4-2.0)	7	1.0	(0.4-2.0)	—	—	—
Ovary and other female genital tract cancer	183,184	16	1.1	(0.6-1.7)	16	1.1	(0.6-1.7)	—	—	—
Kidney cancer[e]	189	10	1.8	(0.9-3.4)	7	1.6	(0.6-3.2)	3	3.2	(0.7-9.4)
Nervous system neoplasms	191-2	6	1.5	(0.5-3.2)	6	1.7	(0.6-3.8)	0	[0.63]	(0-5.9)
Leukemia	204-8	13	1.9	(1.0-3.3)	11	1.9	(1.0-3.5)	2	1.9	(0.2-7.0)

[a] Obs = observed number of deaths. [b] SMR = standardized mortality ratio. [c] CI = 95 percent confidence interval.
[d] When observed deaths = 0, expected deaths are given in parentheses.
[e] Expected deaths were calculated on the basis of the 1992 Moscow rates.

Table 3. Mortality from selected neoplasms by exposure to chloroprene (CP), Moscow shoe factory workers

Cause of death	No CP exposure[a]	Any CP exposure			Medium CP exposure			High CP exposure		
	Obs[b]	Obs[b]	RR[c]	(CI)[d]	Obs[b]	RR[c]	(CI)[d]	Obs[b]	RR[c]	(CI)[d]
All causes of death	260	640	1.13	(0.97-1.30)	446	1.08	(0.93-1.26)	194	1.23	(1.02-1.49)
All malignant neoplasms	81	184	1.03	(0.79-1.34)	128	0.97	(0.76-1.35)	56	1.15	(0.87-1.72)
Stomach cancer	12	36	1.3	(0.7-2.6)	26	1.3	(0.7-2.7)	10	1.3	(0.6-3.1)
Colon cancer	5	16	1.4	(0.5-3.8)	8	0.9	(0.3-2.8)	8	2.6	(0.8-7.9)
Rectum cancer	6	8	0.7	(0.2-2.0)	6	0.7	(0.2-2.3)	2	0.5	(0.1-2.7)
Liver cancer	1	9	4.2	(0.5-33)	6	3.8	(0.5-34)	3	4.9	(0.5-47)
Pancreas cancer	5	7	0.5	(1.2-1.7)	3	0.3	(0.1-1.2)	4	1.2	(0.3-4.6)
Lung cancer	8	23	0.9	(0.4-2.2)	18	0.9	(0.4-2.1)	5	1.1	(0.4-3.5)
Breast cancer	13	20	0.9	(0.5-1.8)	14	0.9	(0.4-2.0)	6	0.8	(0.3-2.1)
Ovary and other female genital tract cancer	6	10	0.9	(0.3-2.5)	8	1.1	(0.4-3.1)	2	0.5	(0.1-2.7)
Kidney cancer	1	9	3.8	(0.5-31)	7	4.1	(0.5-34)	2	3.3	(0.3-37)
Leukemia	4	9	1.1	(0.3-3.7)	4	0.7	(0.2-2.7)	5	2.2	(0.6-8.4)

[a] Reference category.
[b] Obs = observed deaths.
[c] RR = relative risk adjusted for age, gender, and calendar period.
[d] CI = 95 percent confidence interval.

Table 4. Mortality from selected neoplasms by duration of high chloroprene (CP) exposure Moscow shoe factory workers

Cause of death	No CP exposure[a]	1–9 years			10–19 years			20+ years			Trend[e]
	Obs[b]	Obs[b]	RR[c]	(CI)[d]	Obs[b]	RR[c]	(CI)[d]	Obs[b]	RR[c]	(CI)[d]	
All malignant neoplasms	81	36	1.13	(0.76-1.68)	17	1.36	(0.80-2.30)	3	1.05	(0.33-3.34)	0.31
Liver cancer	1	1	2.7	(0.2-45)	1	8.3	(0.5-141)	1	45	(2.2-903)	0.02
Pancreas cancer	5	2	1.0	(0.2-4.5)	2	2.1	(0.4-11)	0	0	—	0.7
Lung cancer	8	3	1.3	(0.3-5.1)	2	2.0	(0.4-9.6)	0	0	—	0.8
Kidney cancer	1	2	7.5	(0.7-87)	0	0	—	0	0	—	—
Leukemia	4	2	1.3	(0.2-7.3)	2	3.4	(0.6-19)	1	8.8	(0.7-66)	0.07

[a] Reference category.
[b] Obs = observed deaths.
[c] RR = relative risk adjusted for age, gender, and calendar period.
[d] CI = 95 percent confidence interval.
[e] Test for linear trend, *P*-value.

Table 5. Mortality from selected neoplasms by estimated cumulative exposure to chloroprene (CP), Moscow shoe factory workers

Cause of death	No exposure[a]	0.1–10 unit-years			10.1–30 unit-years			0.1+ unit-years			Trend[e]
	Obs[b]	Obs[b]	RR[c]	(CI)[d]	Obs[b]	RR[c]	(CI)[d]	Obs[b]	RR[c]	(CI)[d]	
All malignant neoplasms	81	41	0.88	(0.61-1.30)	75	1.03	(0.75-1.42)	68	1.13	(0.81-1.56)	0.41
Liver cancer	1	0	0	—	6	7.1	(0.8-61)	3	4.4	(0.4-44)	0.07
Pancreas cancer	5	1	0.4	(0.04-3.2)	2	0.3	(0.1-1.8)	4	0.9	(0.2-3.3)	0.7
Lung cancer	8	7	1.1	(0.4-3.1)	9	1.0	(0.4-2.5)	7	0.8	(0.3-2.4)	0.7
Kidney cancer	1	2	3.2	(0.3-37)	5	5.5	(0.6-48)	2	2.4	(0.2-27)	0.4
Leukemia	4	3	1.3	(0.4-6.9)	2	0.6	(0.4-8.6)	4	1.5	(0.1-4.7)	0.7

[a] Reference category.
[b] Obs = observed deaths.
[c] RR = relative risk adjusted for age, gender, and calendar period.
[d] CI = 95 percent confidence interval.
[e] Test for linear trend, *P*-value.

leukemia. No suggestion of a dose-response relation was present for other neoplasms, namely pancreas and lung cancers.

Discussion

The mortality from all causes in this cohort of shoe manufacturing workers from Moscow was not different from expected. The long latency between first employment and beginning of follow-up may explain the lack of a healthy workers effect (HWE), in particular among men. Most of these women were hired after World War II, when women in the Soviet Union outnumbered men by almost two to one. The differences in the HWE by gender might be due to random fluctuations, or to a somewhat stronger selection of women into the workforce according to health.[14]

The strongest suggestion of an association with CP in our study concerned liver cancer. The increase was present in both genders and there was a suggestion of a dose-response relation with several indices of CP exposure. In addition, 11 deaths from liver cirrhosis (three among men and eight among women) were recorded in the cohort. The role of liver cirrhosis as a precursor of primary liver cancer is well-established.[15] Among the limitations in our results are the imprecision of most risk estimates, mainly due to the fact that only one death occurred in the group of unexposed workers, the lack of histologic confirmation of the cases, and the presence of other exposures co-varying with CP. It was not possible to know whether any of the liver cancer deaths were from angiosarcoma. These results support the findings of the studies from China[7] and Armenia[8] in which there was an excess in the risk of liver cancer related to exposure to CP. In addition, one case of liver angiosarcoma has been described in a worker exposed to polychloroprene.[16] An elevated mortality of liver cancer was observed in two other cohorts of shoe workers:[17,18] the authors of these studies invoked carbon tetrachloride as a possible explanation of the increased risk. It should be noted that carbon tetrachloride was not used in the Moscow shoe factory.

An excess in mortality from leukemia was also observed in our study, based on 11 deaths in women and two deaths in men. The risk was increased only in workers with high CP exposure, for whom a trend was present by duration of exposure. It is not clear whether these increases in mortality from leukemia can be attributed to the exposure to CP. Workers with high CP exposure also might have been in contact with benzene, which was used until 1957 as a solvent for glues. The association between exposure to benzene and risk of leukemia is well-established.[19] However, shoe workers, among whom a clear excess risk of leukemia has been shown,[20,21] were exposed to levels higher than those reported in this cohort. All five deaths from leukemia in the high CP-exposure group occurred among workers first employed before 1960: the RR of leukemia in this group, compared with workers unexposed to CP, was 4.1 (CI = 1.0-17). Therefore, if the presence of a dose-response relationship between exposure to CP and leukemia risk observed in our study suggests a causal role for CP, co-exposure to benzene remains a possible explanation of our findings for leukemia.

Mortality from cancer of the kidney was increased above expectation in both men and women, and was increased in CP exposed workers compared with unexposed workers. However, the comparison between CP exposed and unexposed workers was hampered by the fact that only one death occurred in the unexposed group. Further, there was no pattern in risk by estimated CP exposure. A possible occupational effect cannot be ruled out since all deaths from kidney cancer occurred after 20 years of employment in the shoe factory. An excess in mortality from kidney cancer was observed in several studies of shoe workers,[22-24] and two deaths from cancer of this site were recorded in 234 workers exposed to CP.[25]

Mortality from cancer of the pancreas was not increased in the cohort as a whole, but in men it was two times higher than expected. However, there was no clear trend by duration of high CP exposure, nor by estimated cumulative exposure. The established risk factors for cancer of the pancreas are tobacco smoking, alcohol consumption, and nutritional factors.[26] In addition, employment in some industries, such as the chemical and petrochemical industry, also has been found to be associated with high mortality from cancer of the pancreas.[26,27] In a Chinese study of CP workers,[7] one death from pancreatic cancer was recorded among 955 men employed in CP production.

An increased mortality from cancer of the brain and nervous system was observed in women. No deaths were observed in men, nor was a dose-response suggested with estimated CP exposure. Although we have not seen a clear association between exposure to CP and mortality from these tumors, it should be remembered that the nervous system is one of the possible targets of the carcinogenic effect of vinyl chloride.[28] Two deaths from neoplasms of the heart and the mediastinum occurred in women: the small number of events, the different histology of the two cases, and the lack of similar reports in other cohorts of workers exposed to CP or related chemicals point towards a non-causal interpretation of the finding, which could be due just to chance. However, given the limited knowledge on the risk factors of these tumors, our observation may be of some value. The results on mortality from the remaining neoplasms were unremarkable: of particular interest is the lack of an association between CP exposure and risk of lung cancer, since an increased risk of this neoplasm has been reported in other studies of CP-exposed workers.[7] The increased SMR for lung cancer among men is therefore unlikely to be due to CP exposure.

An important limitation of our study is the lack of consistent quantitative information on CP exposure. Nevertheless, the available information on CP levels in different areas of the factory and the knowledge of the technological process allowed us to categorize jobs semiquantitatively according to exposure to CP as well as, at least in qualitative terms, to other agents such as benzene and leather dust. An additional limitation is the lack of follow-up before 1979, because of unavailability of mortality records before that date. This resulted in the exclusion of some workers who fulfilled the criteria for eligibility in the cohort but died before 1979, leading to an underestimate of the SMRs. On the other hand, the exclusion of a larger proportion of person-years during employment than after leaving employment may have caused an overestimate of the SMRs. Because of these limitations, we gave more weight to the analyses based on internal comparisons. Finally, the lack of reference rates for some cancers for most of the follow-up periods would have caused an overestimate of the SMR only if rates during the missing period were higher than during the later period: this does not seem to be the case for the cancers showing some excess mortality, such as liver cancer.[29]

In conclusion, our study suggests that exposure to CP increases the risk of cancer of the liver and of leukemia. It also suggests a possible effect on kidney cancer and malignant neoplasms of the mediastinum and heart. Although the study has a relatively low statistical power, it adds to the available body of evidence on carcinogenicity of CP in humans.

References

1. International Agency for Research on Cancer. *Boot and Shoe Manufacture and Repair.* Lyon, France: IARC, 1987; *IARC Monogr Eval Carcinog Risk Chem Humans, Suppl. 7, Overall Evaluations of Carcinogenicity; an Updating of IARC Monographs Volumes 1–42*: 232-5.
2. International Agency for Research on Cancer. *Chloroprene and Polychloroprene.* Lyon, France: IARC, 1979; *IARC Monogr Eval Carcinog Risk Chem Humans, Vol. 19, Some Monomers, Plastics and Synthetic Elastomers, and Acrolein*: 131-56.
3. Culik R, Kelly DP, Clary JJ. Inhalation studies to evaluate the teratogenic and embriotoxic potential of β-chloroprene (2-chlorobutadiene-1,3). *Toxic Appl Pharmacol* 1978; **44**: 81-8.
4. Shelby MD. Results of NTP-sponsored mouse cytogenetic studies on 1,3-butadiene, isoprene, and chloroprene. *Envir Health Perspec* 1990; **86**: 71-3.
5. Zilfjan VN, Fichidzhyan BS, Pogosova AM. Results of testing chloroprene for carcinogenicity [in Russian]. *Acad Sci Armen SSR, Zh eksp klin Med* 1975; **15**: 54-7.
6. Pell S. Mortality of workers exposed to chloroprene. *J Occup Med* 1978; **20**: 21-9.
7. Li S, Dong Q, Yuqing L, Yingfei L. Epidemiologic study of cancer mortality among chloroprene workers. *Biom Environ Sci* 1989; **2**: 141-9.
8. Bulbulyan MA, Uloyan SM, Margaryan AG, Astashevsky S. Risk of liver cancer in workers exposed to chloroprene [Abstract]. Proceedings of the 11th International Symposium on Epidemiology in Occupational Health, The Netherlands, 5-8 September 1995. *Epidemiology* 1995; **6**: S133.
9. Word Health Organization. *International Classification of Diseases, Ninth Revision.* Geneva, Switzerland: WHO, 1978.
10. Volkova ZA, Fedotova MI, Choang BC. Ozdorovlenie uslovii truda na Moscow obuvnich fabrikach [in Russian]. In: Aldireva MV, Djakova GA, Babina MD, Ponomareva AA, eds. *Gigiena Truda na Predprijatijach Moskvi.* Medicina 1974: 106-11.
11. Breslow NE, Day NE. *Statistical Methods in Cancer Research. Vol II. The Design and Analysis of Cohort Studies.* Lyon, France: International Agency for Research on Cancer, 1987; IARC Sci. Pub. No. 82.
12. Mantel N, Haenzel W. Statistical aspects of the analysis of data from retrospective studies of disease. *J Natl Cancer Inst* 1959; **22**: 719-48.
13. Stata. *Stata Statistical Software: Release 5.0.* College Station, TX (USA): Stata Corporation, 1997.
14. Bulbulyan M, Zahm SH, Zaridze DG. Occupational cancer mortality among urban women in the former USSR. *Cancer Causes Control* 1992; **3**: 299-307.
15. London WT, McGlynn KA. Liver cancer. In: Schottenfeld D, Fraumeni JF Jr, eds. *Cancer Epidemiology and Prevention. Second Edition.* New York, NY (USA): Oxford University Press, 1996: 772-93.
16. Herbert JT. *Angiosarcoma of the Liver in a Rubber Worker.* Atlanta, GA (USA): Centers for Disease Control and Prevention, 1976; (Angiosarcoma surveillance memorandum).
17. Englund A. Cancer incidence among painters and some allied trades. *J Toxicol Environ Health* 1980; **6**: 1267-73.
18. Decoufle P, Walrath J. Proportionate mortality among US shoeworkers, 1966–1977. *Am J Ind Med* 1983; **4**: 523-32.
19. International Agency for Research on Cancer. *Benzene.* In: *Some Industrial Chemical and Dyestuffs.* Lyon, France: IARC, 1982; *IARC Monogr Eval Carcinog Risk Chem Humans, Vol. 29*: 93-148.
20. Aksoy M, Erdem S, DinCol G. Leukemia in shoe workers exposed chronically to benzene. *Blood* 1974; **44**: 837-41.
21. Vigliani EC. Leukemia associated with benzene exposure. *Ann NY Acad Sci* 1976; **271**: 143-51.
22. Malker HR, Malker BK, McLaughlin JK. Kidney cancer among leather workers. *Lancet* 1984; **i**: 56.
23. Walker JT, Bloom TF, Stern FB, Okun AH, Fingerhut MA, Halperin WE. Mortality of workers employed in shoe manufacturing. *Scand J Work Environ Health* 1993; **19**: 89-95.
24. Fu H, Demers PA, Constantini AS, *et al.* Cancer mortality among shoe manufacturing workers: an analysis of two cohorts. *Occup Environ Med* 1996; **53**: 394-8.

25. Berg MT, Burke CA, Chen JL, Walrath J, Pell S, Gallie CR. Cancer incidence and mortality in the du Pont Company: an update. *J Occup Med* 1987; **20**: 245-52.
26. Anderson KE, Potter JD, Mack TM. Pancreatic cancer. In: Schottenfeld D, Fraumeni JF Jr, eds. *Cancer Epidemiology and Prevention. Second Edition.* New York, NY (USA): Oxford University Press, 1996: 725-71.
27. Pietri F, Clavel F. Occupational exposure and cancer of the pancreas: a review. *Br J Ind Med* 1991; **48**: 583-7.
28. Waxweiler RJ, Stringer W, Wagoner JK, Jones J. Neoplastic risk among workers exposed to vinyl chloride. *Ann NY Acad Sci* 1976; **271**: 40-8.
29. La Vecchia C, Levi F, Lucchini F, Negri E, Boyle P. Trends in cancer mortality in the USSR, 1965–1990. *Int J Cancer* 1994; **56**: 31-9.

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CANCER INCIDENCE AND MORTALITY IN A COHORT OF CHLOROPRENE WORKERS FROM ARMENIA

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We evaluated the risk of cancer among 1897 men and 417 women exposed to chloroprene (2-chloro-1,3-butadiene, CP) at a production plant in Yerevan, Armenia, between 1940 and 1988. The cohort was followed up for cancer incidence for the years 1979–1990 and for cancer mortality for 1979–1988. In the cohort, incidence and mortality from all cancers were below expectation, but increased incidence (standardized incidence ratio 3.27, 95% confidence interval [CI] 1.47–7.27), and mortality (standardized mortality ratio 3.39, 95% CI 1.09–10.5) from liver cancer were noticed. A dose–response relationship was suggested between liver cancer and indices of CP exposure, such as duration of employment, duration of high CP exposure and cumulative exposure to CP. The risk of other neoplasms was not increased. ***Int. J. Cancer*** **81:31–33, 1999.**

Chloroprene (2-chloro-1,3 butadiene, CP) is not known to occur as a natural product. The chemical structure of CP is similar to that of vinyl chloride. CP exerts embryotoxic, teratogenic and mutagenic effects (IARC, 1998) and is classified by the International Agency for Research on Cancer as a possible human carcinogen (group 2B) on the basis of positive studies in experimental animals (IARC, 1999).

Limited data on the carcinogenicity of CP in humans are available (Bulbulyan *et al.*, 1998; Li *et al.*, 1989; Lloyd, 1976; Pell, 1978). An increased risk of liver (Bulbulyan *et al.*, 1998; Li *et al.*, 1989) or digestive tract cancers (Pell, 1978) has been reported in some of the studies. We have reported a cohort study among shoe workers from Moscow, Russia that suggests an association between CP exposure and risk of liver cancer and leukaemia (Bulbulyan *et al.*, 1998). In addition to that study, we have conducted a historical cohort study at a CP production plant in Yerevan, Armenia, to further examine cancer incidence and mortality of workers exposed to CP and in particular to test the hypothesis of an increased risk of liver cancer.

MATERIAL AND METHODS

The cohort comprises a total of 2,314 production workers (1,897 men and 417 women) who were employed in the production departments of a CP plant located in Yerevan, for at least 2 months between 1940 and 1988 and were alive as of 1979. Cohort members were identified and work histories collected from the individual records of the Personnel Department of the plant. The information for each member of the cohort included surname, name, patronymic (father's name), gender, date and place of birth, address, and information on all jobs at the plant, with dates of start and end of every job, and departments of employment.

Information on the vital status of the workers for the period of 1979–1988 was obtained from the Yerevan Address Bureau. For members of the cohort with unknown vital status and those known to have died, information was searched in the State Registry Office Card Index. The causes of death were abstracted from the death certificates and coded according to the 9th Revision of the International Classification of Diseases (ICD-9) [World Health Organization (WHO), 1977]. A total of 63 workers (2.7%) were lost to follow-up. They accumulated person-years up to the date of end of employment. Information on cancer incidence in the cohort during 1979–1990 was obtained from the Armenian Cancer Registry in Yerevan.

The workers with heaviest exposure to CP were production operators. Cleaners, locksmiths, laboratory technicians and other production workers were less exposed than operators. The available information on CP exposure is not systematic and refers to the production department, without specification of jobs, for 2 periods: before and after 1980, when industrial hygiene measures led to a sharp decline in CP exposure levels, from above 500 to 0.5–5 mg/m^3 (Table I). To calculate a cumulative index of CP exposure, we assigned exposure units according to the following scheme: operators (high CP exposure): 6 units up to 1980, 3 units after 1980; cleaners, locksmiths, laboratory technicians and other production workers (low CP exposure): 2 units up to 1980, 1 unit after 1980; unexposed workers: 0 units. We then added up the units for each year of employment.

The standardized incidence ratios (SIRs) for different cancers were calculated for the whole cohort and for men and women. The rates for the Armenian population were used as reference (Trapeznikov *et al.*, 1991). The standardized mortality ratios (SMRs) for different causes of deaths were calculated for the whole cohort and for men and women. The mortality of the Armenian population was used as reference (Aksel and Dvoirin, 1992). The 95% confidence intervals (CIs) of SIRs and SMRs were calculated using Poisson distribution (Breslow and Day, 1987).

We also estimated the relative risk (RR) for liver cancer according to duration of employment and CP exposure by fitting multivariate Poisson regression models (Breslow and Day, 1987). RRs were adjusted for age, calendar period and gender.

RESULTS

The cohort contributed 21,107 person-years of observation in the mortality follow-up and 25,782 person-years for cancer incidence. The incidence of all malignant neoplasms in the whole cohort of CP workers was lower than expected (37 cases, SIR 0.68, 95% CI 0.49–0.94) (Table II). The incidence of cancers of the lung (6 cases, SIR 0.53, 95% CI 0.24–1.19) and stomach (3 cases, SIR 0.43, 95% CI 0.14–1.33) was decreased, whereas the incidence of liver cancer was higher than expected (6 cases, SIR 3.27, 95% CI 1.47–7.27). The results on cancer incidence were mainly due to the male component of the cohort, which contributed 5 of the cases of lung cancer (SIR 0.66, 95% CI 0.46–0.94) and 5 of the cases of liver cancer (SIR 3.03, 95% CI 1.26–7.27). In women, there was 1 case of liver cancer (0.18 expected).

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TABLE I – MEASURED CHLOROPRENE (CP) LEVELS IN THE AIR OF THE PRODUCTION DEPARTMENT

Period	Number of measurements	Summer			Winter		
		Minimum	Maximum	Average	Minimum	Maximum	Average
Before 1980	2,478	0.99–4.73	10.80–269.1	5.59–69.80	0.31–6.24	4.14–784.0	2.30–249.5
After 1980	1,224	0.10–0.47	1.90–23.20	0.80–3.60	0.16–0.64	0.85–4.49	0.55–2.10

CP levels given as mg/m^3.

TABLE II – STANDARDIZED INCIDENCE RATIOS OF SELECTED NEOPLASMS AMONG CHLOROPRENE WORKERS

	ICD-9 (WHO, 1977)	Observed number of cases	Standardized incidence ratio	95% confidence interval
All malignant neoplasms	140–208	37	0.68	0.49–0.94
Stomach cancer	151	3	0.43	0.14–1.33
Liver cancer	155	6	3.27	1.47–7.27
Laryngeal cancer	161	2	0.76	0.19–3.03
Lung cancer	162	6	0.53	0.24–1.19
Skin melanoma	172	2	0.56	0.14–2.23
Breast cancer	174	3	1.37	0.44–4.25
Bladder cancer	188	2	0.83	0.21–3.32
Lympho-hematopoietic neoplasms	200–208	2	0.50	0.12–1.99

TABLE III – STANDARDIZED MORTALITY RATIOS OF SELECTED NEOPLASMS AMONG CHLOROPRENE WORKERS

Cause of death	ICD-9 (WHO, 1977)	Observed number of cases	Standardized mortality ratio	95% confidence interval
All malignant neoplasms	140–208	20	0.87	0.56–1.36
Stomach cancer	151	4	1.09	0.41–2.90
Liver cancer	155	3	3.39	1.09–10.5
Lung cancer	162	3	0.50	0.16–1.55

TABLE IV – INCIDENCE OF LIVER CANCER AMONG CHLOROPRENE (CP) WORKERS, BY DURATION OF EMPLOYMENT AND CP EXPOSURE

	Observed number of cases	Standardized incidence ratio	95% confidence interval
Duration of employment (years)			
<1	0	[0.06][2]	—
1–9	1	3.69	0.52–26.2
10–19	1	2.91	0.41–20.7
20+	4	3.45	1.29–9.20
Duration of CP exposure (years)			
<1	0	[0.21][2]	—
1–9	1	1.90	0.27–13.5
10+	5	4.56	1.90–11.0
Duration of high CP exposure (years)[1]			
<1	1	1.46	0.21–10.4
1–9	1	2.00	0.28–14.2
10+	4	6.12	2.30–16.3
Cumulative CP exposure (unit-years)			
1–14	0	[0.46][2]	—
15–39	1	2.93	0.41–20.8
40+	5	4.86	2.02–11.7

[1]Defined as employment as CP operator.–[2]Numbers in brackets are expected cases.

The mortality from all cancers in the cohort was slightly lower than expected (20 deaths, SMR 0.87, 95% CI 0.56–1.36) (Table III). Mortality from lung cancer was decreased (3 deaths, SMR 0.50, 95% CI 0.16–1.55), whereas no deficit was observed in stomach cancer mortality. An increase in mortality was observed for liver cancer (3 deaths, SMR 3.39, 95% CI 1.09–10.51). Two deaths from lung cancer (SMR 0.35, 95% CI 0.09–1.38) and 2 deaths from liver cancer (SMR 2.48, 95% CI 0.62–9.92) occurred among men. In women there was 1 death from liver cancer (0.08 expected).

The analysis of the incidence of liver cancer in the cohort of CP production workers by duration of employment is shown in Table IV. The increase in liver cancer incidence was restricted to workers who were employed for 20 years or more (4 cases, RR 3.45, 95% CI 1.29–9.20). When the duration of employment before the year 1980 was considered as a measure of high CP exposure, the results were similar. All 6 cases were employed as operators: 5 of them were classified in the category at highest cumulative exposure (40 or more unit-years, SIR 4.86, 95% CI 2.02–11.7). The 3 deaths from liver cancer occurred among the 6 workers diagnosed with an incident cancer: the mortality results according to duration of employment and cumulative exposure produced results similar to those of the analysis of incidence. In internal analyses, the results were similar to those shown in Table IV: for example, the RR of liver cancer for 10 or more years of exposure to CP, as compared with less than 10 years, was 6.42 (95% CI 0.50–82.59).

DISCUSSION

The incidence of all malignant neoplasms in this cohort of CP production workers was lower than expected. This deficit in cancer incidence was particularly strong for duration of employment of more than 20 years (12 cases, SIR 0.44, 95% CI 0.25–0.79). The mortality from all malignant neoplasms was also lower than expected, but the deficit was smaller than for cancer incidence. We were not able to calculate SMRs for non-neoplastic causes of death; our results, however, suggest the possibility of a strong healthy worker effect, which might have been due to lack of follow-up prior to 1979. The number of workers employed since 1940 who died before 1979 was not available. Incomplete enumeration of outcomes during the follow-up might be an alternative explanation for the low SMRs.

Lack of detailed information on exposure is an important limitation of our study. Despite the relatively large number of measurements available (Table I), the results cannot be readily summarized into quantitative levels, because the measurements were not fully comparable. We preferred, therefore, to present summary statistics based on comparable sets of measurements in Table I and to use semi-quantitative indices of exposure. The results of the dose–response analysis presented in Table IV, on the other hand, were not sensitive to the scale of the exposure units we selected, because we obtained similar results when we applied a factor of 10, instead of 2, to separate between pre- and post-1980 employment.

The strongest suggestion of an association with CP in our investigation concerns liver cancer. The increase was present in incidence and mortality and, although based on 1 case/death only among women, in both genders. The indirectly standardized analyses were limited by the lack of local reference rates. Although the cancer registry in Armenia might lack incomplete registration and misclassification, in particular regarding liver cancer, it is unlikely that this problem would result in a positive association with estimated CP exposure. However, in internal analyses there was a suggestion of a dose–response relationship with several indices of CP exposure. All cases of liver cancer occurred among operators, the group at highest CP exposure. There were also 32 cases of liver cirrhosis recorded in the cohort (27 among men and 5 among women). The role of liver cirrhosis as a precursor of primary liver cancer is well established (London and McGlynn, 1996).

Our results support the findings of the studies from China (Li *et al.*, 1989) and Moscow (Bulbulyan *et al.*, 1998), in which an excess in risk of liver cancer related to CP exposure was observed. Among the limitations of our study are the imprecision of most risk estimates, the lack of histological confirmation of the cases and the possible presence of other exposures co-varying with CP. It was impossible to find out whether any of the liver cancers was an angiosarcoma. Among the other agents present in this factory were vinyl acetate (only before 1980, mean level 15.8 ± 2.3 mg/m^3), toluidine (5.2 ± 0.9 mg/m^3 before 1980; 1.8 ± 0.9 mg/m^3 after 1980), talc (69.5 ± 18.7 mg/m^3 before 1980; 126.2 ± 18.7 mg/m^3 after 1980) and mercaptans (16.3 ± 5.3 mg/m^3 before 1980; 0.8 ± 0.02 mg/m^3 after 1980). None of these agents is known as a liver carcinogen.

An elevated mortality from liver cancer was observed in cohorts of shoe workers (Decoufle and Walrath, 1983; Englund, 1980): the authors of these studies invoked carbon tetrachloride as a plausible explanation of the increased risk. In the Yerevan CP production factory, carbon tetrachloride was not used.

A part form a slight, non-significant increase in the incidence of female breast cancer, based on 3 cases, the incidence of all other neoplasms, and in particular lung cancer and lympho-haematopoietic neoplasms, was below expectation. Although the statistical power of this study was low, it did not confirm suggestions of an increased risk of lung cancer (Pell, 1978) and leukaemia (Bulbulyan *et al.*, 1998) among CP-exposed workers.

In conclusion, despite several limitations and in particular the relatively short follow-up and lack of detailed exposure information, our results confirm previous suggestions that exposure to CP might increase the risk of cancer of the liver in humans.

REFERENCES

AKSEL, E.M. and DVOIRIN, V.V., *Cancer statistics (incidence, mortality, trends)*, pp. 13–16, Academy of Medical Science, Moscow (1992) [in Russian].

BRESLOW, N.E. and DAY, N.E., *Statistical methods in cancer research, Vol. 2. The design and analysis of cohort studies,* International Agency for Research on Cancer (IARC) Scientific Publication **82,** IARC, Lyon, France (1987).

BULBULYAN, M.A., SHANGINA, O.V., ZARIDZE, D.G., ASTASHEVSKY, S.V., COLIN, D. and BOFFETTA, P., Cancer mortality among shoe workers exposed to chloroprene. *Cancer Causes Control,* **9**, 381–387 (1998).

DECOUFLE, P. and WALRATH, J., Proportionate mortality among US shoeworkers, 1966–1977. *Amer. J. ind. Med.*, 4, 523–532 (1983).

ENGLUND, A., Cancer incidence among painters and some allied trades. *J. Toxicol. Environ. Health*, **6**, 1267–1273 (1980).

INTERNATIONAL AGENCY FOR RESEARCH ON CANCER (IARC), *Chloroprene,* IARC monographs on the evaluation of carcinogenic risks to humans, Vol. **71**, IARC, Lyon, France (1999) (In press).

LI, S., DONG, Q., LIU, Y.Q. and LIU, Y.F., Epidemiologic study of cancer mortality among chloroprene workers. *Biomed. Environ. Sci.*, **2**, 141–149 (1989).

LLOYD, J.W., Cancer risks among workers exposed to chloroprene. *Ann. NY Acad. Sci.*, **271**, 91–92 (1976).

LONDON, W.T. and MCGLYNN, K.A., Liver cancer. *In:* D. Schottenfeld and J.F. Fraumeni (eds.), *Cancer epidemiology and prevention (2nd ed.)*, pp. 772–793, Oxford University Press, New York (1996).

PELL, S., Mortality of workers exposed to chloroprene. *J. occup. Med.*, **20**, 21–29 (1978).

TRAPEZNIKOV, N.N., TCERKOVNY, G.F. and DVOIRIN, V.V., *Cancer in the USSR, 1980–1989*, pp. 116–143, 254–295, USSR Health Ministry, Moscow (1991) [in Russian].

WORLD HEALTH ORGANIZATION (WHO), *International classification of diseases (9th rev.)*, WHO, Geneva, Switzerland (1977).

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MORTALITY ANALYSIS OF WORKERS EXPOSED TO CHLOROPRENE

Final Report for E. I. du Pont de Nemours and Company, Inc.

June 1982

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INTRODUCTION

A historical cohort mortality study of 1,575 men occupationally exposed to chloroprene was conducted by the medical divison of E.I. du Pont de Nemours and Company (Du Pont). The study was designed to evaluate the risk of lung cancer and other major causes of mortality with respect to chloroprene exposure. The study showed no association between chloroprene exposure and an increased risk of mortality from specific diseases, including lung cancer (Pell, 1978).

The National Institute for Occupational Safety and Health (NIOSH) assisted Du Pont in the study by providing additional epidemiologic resources. NIOSH was able to determine the vital status of 223 of 240 men in the cohort who could not be located by Du Pont. This effort reduced the percentage of men lost to follow-up from 15.2% to 1.1%. Once the original study was completed, NIOSH was given the data by Du Pont to reanalyze, using the NIOSH modified life table computer program. This report summarizes the results of the reanalysis.

DISCLAIMER

Because NIOSH was involved neither in the identification of the cohort nor in the extraction of data from Du Pont personnel files, the agency cannot attest to the accuracy or completeness of the data upon which the study was based.

PLANT HISTORY

The Du Pont plant is located in Louisville, Kentucky and has manufactured neoprene rubber from chloroprene, a chlorinated hydrocarbon monomer, since the plant began operation in 1942. The plant began production of synthetic rubber as a result of government effort to provide a substitute for natural rubber needed for the war efforts. In 1949, the plant was acquired by Du Pont. In addition to producing neoprene rubber, the plant manufactured chloroprene from acetylene between 1942 and 1973. Since 1973 chloroprene has been made from butadiene, but at other Du Pont plants. Presently, crude chloroprene is shipped to the Louisville plant where it is purified and polymerized to produce neoprene rubber.

METHODS

The cohort, as defined by Du Pont, included all 1,575 male hourly employees who were working at the Louisville plant on June 30, 1957. Potential cohort members were identified via the plant's 1957 employment roster. The plant's 1957 roster was selected for three reasons: 1) Du Pont began its cancer epidemiological surveillance program in 1956, 2) the plant's workforce was relatively stable at that point in time, and 3) most members of the cohort had at least 15 years of potential exposure to chloroprene. Salaried and female employees were excluded by Du Pont, because most had minimal or no potential exposure to chloroprene.

Demographic and work history data for each member of the cohort were compiled by Du Pont. NIOSH was given a computer tape containing the following data for each cohort member: employee identification number, sex, date of birth, date of death or date last observed, underlying cause of death, detailed work history, and occupational exposure levels. The racial distribution of the cohort was unknown, but was thought to be 90% white. However, for this analysis, all cohort members were assumed to be white. The detailed work history consisted of specific work periods and job titles. Each job within the plant was assigned a relative exposure level, i.e., "high", "moderate", "low", or "varied" in potential for exposure to chloroprene, due to the limited industrial hygiene data for airborne concentrations of chloroprene in the plant from 1942 to 1970 (Table 1). This classification was based upon the degree of chloroprene exposure that was presumed to accompany a specific job within the plant and was developed by an industrial hygienist who worked at the Louisville plant for 25 years.

The cohort was followed from June 30, 1957 to December 31, 1974. The vital status of the cohort was ascertained using Du Pont personnel records and data from the Social Security Administration, state departments of motor vehicle registration, and state departments of vital statistics. The vital status of 1,559 (or 98.9%) of the 1,575 men in the cohort was determined (Table 2).

The date and underlying cause of death were obtained from death certificates for each of the 193 deaths in the cohort. The causes of death were coded according to the rules of the International Classification of Diseases (ICD) in effect at the time of death, and, for this analysis, were converted to seventh revision codes.

A modified life table computer program was used to calculate the number of person-years at risk (PYAR), stratified by five-year age and calendar periods. For the total cohort, the number of PYAR contributed by each cohort member was the number of years from June 30, 1957 to the date of death or to the study end date (December 31, 1974) for those alive on that date. Men lost to follow-up were assumed to be alive as of the study end date. The expected number of deaths for each cause was calculated by multiplying the PYAR by United States white male mortality rates specific for five-year age and calendar periods. The standardized mortality ratio (SMR)* was calculated for selected causes of death. Differences between the observed and expected numbers of deaths were tested for statistical significance, assuming a Poisson distribution. If the observed number of deaths was greater than two, an exact p-value was calculated using a two-sided test and 95% confidence limits were computed for the SMR (Rothman and Boice, 1979).

The total cohort was divided into two groups based upon the degree of chloroprene exposure. One group, which will be referred to as the "high exposure" subcohort, contained all workers who were ever exposed to a high

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$$*SMR = \frac{\text{observed number of deaths}}{\text{expected number of deaths}} \times 100$$

level of chloroprene and the other group, known as the "low exposure" subcohort, consisted of workers who were exposed only to moderate, low, or varied levels of chloroprene. If a worker held more than one job, his exposure classification for this analysis was the highest level associated with any of the jobs that he held during his work experience at the plant.

The "high exposure" subcohort was further divided into one of three job categories: chemical operators, maintenance mechanics, or other high exposure occupations (Appendix A). The latter category included clean-up operators, helpers, poly unit mechanics, and process mechanics. Men with multiple high exposure jobs, e.g., chemical operator and maintenance mechanic, were not restricted to only one high exposure job category. In fact, each high exposure job category contained all the workers who had ever worked at the specific job(s) listed for that particular category.

In the exposure-specific analysis, a worker potentially exposed to a high level of chloroprene did not accumulate PYAR until he worked at a high exposure job. Then, PYAR contributed to the "high exposure" subcohort were calculated from the first day of high exposure and not from the first day of follow-up (June 30, 1957), if the first high exposure occurred after June 30, 1957 (Figure 1, example 1). If a worker was exposed to a high level of chloroprene before mid-1957, he did not begin contributing PYAR to the "high exposure" subcohort until June 30, 1957 (Figure 1, example 2). A worker who was exposed only to moderate, low, or varied levels of chloroprene began contributing PYAR to the "low exposure" subcohort on June 30, 1957 or the first day of chloroprene exposure, whichever occurred later. If a worker was originally exposed to moderate, low, or varied levels and then to a high level of chloroprene, he contributed PYAR to the "low exposure" subcohort until he was exposed to a high level of chloroprene (Figure 1, example 3). Once he was exposed to a high level, he then provided PYAR to the "high exposure" subcohort for the remainder of the follow-up period and regardless of subsequent chloroprene exposure jobs (Figure 1, example 1).

Cancer mortality data were analyzed with respect to latency and duration of chloroprene exposure. Latency was defined as the interval from onset of chloroprene exposure. For the total cohort and the "low exposure" subcohort, latency began at the first day of exposure to chloroprene. For the "high exposure" subcohort, latency began for a worker when he was exposed to a high level of chloroprene. The observed and expected numbers of deaths due to malignant neoplasms of the major organ systems were stratified by 10-year intervals of latency and by 10-year intervals of chloroprene exposure. A chi-square test for trend, with one degree of freedom, was used to test for linear associations between SMRs and latency or duration of exposure (Breslow, 1981).

RESULTS

Of the 1,575 men in the total cohort, 851 were allocated to the "high exposure" subcohort and 823 were assigned to the "low exposure" subcohort. The 851 high exposed workers included 457 chemical operators, 372 maintenance mechanics, and 158 men who held other high exposure occupations at the Louisville plant. The total number of workers in the "high exposure" subcohort did not equal the sum for the specific high exposure occupations, because as mentioned earlier, a worker could be in more than one high exposure job category. A total of 99 workers contributed PYAR to the "low exposure" subcohort and subsequently to the "high exposure" subcohort and these workers were included in both subcohorts. In addition, workers in the total cohort accumulated a total of 26,304 PYAR during 1957-1974, or an average of 16.7 PYAR per cohort member. Workers in other exposure-specific categories accumulated fewer PYAR on the average per cohort member (Table 3).

The men in the total cohort were 29.4 years old (95% confidence limits=29.0 and 29.7) when first exposed to chloroprene at the Louisville plant. Those in the "high exposure" subcohort were slightly older ($\bar{x}$=30.8 years, 95% c.l.=30.3 and 31.4), whereas those in the "low exposure" subcohort were approximately the same age ($\bar{x}$=29.5, 95% c.l.=29.1 and 30.0) as the total cohort upon first exposure to chloroprene. Chemical operators were 29.0 years old (95% c.l.=29.1 and 30.0) when they were first assigned to high exposure jobs. Both maintenance mechanics and workers in other high exposure occupations were older, 34.2 years (95% c.l.=33.4 and 34.9) and 31.4 years (95% c.l.=30.0 and 32.7), respectively (Table 4).

In the total cohort, 193 deaths occurred among workers exposed to chloroprene in contrast to 244.9 expected deaths (table 5). The difference was statistically significant (p=.0006). There were nonsignificant excesses in observed deaths compared to expected deaths from malignant neoplasms of the digestive system (19 observed deaths versus 13.1 expected, p=.14), respiratory system (19* versus 17.0, p=.69), and lymphatic/hematopoietic system (7 versus 5.0, p=.47). A statistically significant excess number of deaths was found for malignant neoplasm of the biliary passages and liver (4 versus 0.7, p=.01). Deaths due to diseases of the circulatory system (80 versus 109.1, p=.004) were significantly less than expected, but deaths due to vascular lesions affecting the central nervous system (18 versus 13.3, p=.25) revealed a nonsignificant excess.

Fewer total deaths occurred than expected among workers in the "high exposure" subcohort (91 versus 120.8, p=.006) and among those in the "low exposure" subcohort (102 versus 124.0, p=.04) (tables 6-7). As seen in

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*Clinical reports obtained by Du Pont only confirmed 18 of 19 respiratory cancer deaths. Du Pont believes that one death certificate was incorrectly coded as lung cancer, since the clinical report indicated that the tumor metastasized from the bladder to the lungs.

the total cohort, both subcohorts revealed nonsignificant excesses in observed deaths from malignant neoplasms of the digestive, respiratory, and lymphatic/hematopoietic systems. Three of the four deaths from malignant neoplasm of the biliary passages and liver (3 versus 0.4, $p=.01$) occurred among workers in the "high exposure" subcohort. Both subcohorts had fewer deaths than expected from diseases of the circulatory system; however, workers in the "low exposure" subcohort had more deaths than expected from vascular lesions affecting the central nervous system (15 versus 6.9, $p=.01$).

Mortality among men who worked as chemical operators, maintenance mechanics, and other high exposure occupations is reported in tables 8-10. There were 31 deaths compared to 44.1 expected ($p=.04$) among chemical operators, of which eight were due to malignant neoplasms (8 versus 8.2, $p=.99$). There were 45 deaths among maintenance mechanics which were significantly less than the expected number of 64.4 ($p=.01$). Twelve of the 45 deaths resulted from malignant neoplasms (12 versus 12.7, $p=.99$), and this included three deaths from malignant neoplasm of the biliary passages and liver (3 versus 0.2, $p=.002$). All three deaths from malignant neoplasm of the liver and biliary passages occurred after 10 to 19 years of chloroprene exposure. One death, occurring after 10 to 19 years of latency, was from malignant neoplasm of the liver (ICD 155.0), and the other two deaths, occurring after 20 years of latency, were due to malignant neoplasm of the gallbladder (ICD 155.1). Pathology reports were not available for either of the two latter decedents to verify the primary tumor site. There were 16 deaths in contrast to 19.8 expected ($p=.47$) among men who had other high exposure occupations, and only five deaths due to malignant neoplasms (5 versus 3.9, p=.70) were reported. All three occupational groups had fewer deaths than expected from diseases of the circulatory system. Other specific causes of death were observed, but the numbers were too small to be meaningful.

The observed and expected numbers of deaths from malignant neoplasms among workers with less than 10 years, 10 to 20 years, and 20 or more years of latency are presented in tables 11-16. There were no statistically significant trends with respect to latency. The observed and expected numbers of deaths from malignant neoplasms among workers with less than 10 years, 10 to 20 years, and 20 or more years of presumed chloroprene exposure are shown in tables 17-22. Again, no statistically significant trends were apparent among the SMRs.

DISCUSSION

As expected with an industrial population, mortality from all causes and from diseases of the circulatory system among workers exposed to chloroprene was significantly less than expected when compared to the United States population. This decrease in mortality from all causes was observed in the total cohort, "high exposure" subcohort, "low exposure" subcohort, and among chemical operators and maintenance mechanics, and a similar pattern from diseases of the circulatory system was seen in the total cohort and "low exposure" subcohort. This favorable mortality experience for the cohort probably reflects the "healthy worker" effect (Fox and Collier, 1976; McMichael, 1976).

Within the total cohort and within both subcohorts, nonsignificant excesses were seen for malignant neoplasms of three organ systems: digestive, respiratory, and lymphatic/hematopoietic. The nonsignificant excesses for the three organ systems were present after 20 years of latency. However, no statistically significant trends were evident, but this may have been due to the small numbers in the strata. A statistically significant two-fold excess in mortality from vascular lesions affecting the central nervous system was seen among workers in the "low exposure" subcohort, but it is uncertain whether this excess is related to chloroprene exposure.

Data analysis by type of occupation, i.e., chemical operators, maintenance mechanics, and other high exposure occupations, did not show a significant excess in mortality among workers who held high exposure jobs. There was one exception; an excess for maintenance mechanics dying from malignant neoplasm of the biliary passages and liver. As stated earlier, two of the deaths were due to malignant neoplasm of the gallbladder and the other was attributed to malignant neoplasm of the liver. No gallbladder carcinogen has yet been identified in humans (Diehl, 1980). However, two studies have suggested a higher risk of mortality from malignant neoplasm of the gallbladder among other occupational groups, including workers in textile manufacturing, metal fabricating, automobile manufacturing, and rubber processing (Krain, 1972; Mancuso and Brennan, 1970).

Other factors that were considered were the cohort selection criteria and the statistical power. In this study, the cohort was selected from a roster of employees at the Louisville plant on June 30, 1957. As stated earlier, this year was chosen for three reasons: 1) Du Pont began its cancer epidemiological surveillance program in 1956, 2) the plant's workforce was relatively stable at that point in time, and 3) most members of the cohort had at least 15 years of potential exposure to chloroprene. Although the employee roster provided an excellent means of identifying all employees working at a plant in a specific year, it excluded all employees who were exposed to chloroprene, but who terminated before June 30, 1957. If the cohort had included these terminated employees, this would had increased the size of the cohort and, in turn, would have resulted in more PYAR, larger numbers of expected deaths, and greater statistical power.

Power values based on the equation by Beaumont and Breslow (1981) were calculated for selected causes of death for the total cohort. The power values indicated a 87% chance of detecting a risk ratio of 1.5 for all malignant neoplasms, if an excess risk actually existed. However, the chance of detecting the same risk ratio for more specific causes of death was considerably less. For example, there was only a 37% and 46% chance of detecting a risk ratio of 1.5 for malignant neoplasms of the digestive system and respiratory system, respectively. Of course, the power increases with larger risk ratios, and it appears that the total cohort had a power of 80% or more to detect a risk ratio of two or more for some of the major causes of death, e.g., malignant neoplasm of the respiratory system. However, the power is reduced well below an acceptable level of 80% when the total cohort is stratified by the degree of exposure or by type of occupation. Thus, the nonsignificant excesses in mortality found in the study may have been the result of small statistical power.

In conclusion, the results in this study appear to agree with those presented by Du Pont and fail to support the hypothesis that men occupationally exposed to chloroprene are at a higher risk of dying from lung cancer or other specific diseases than the general population. However, these results are based on data from a cohort that may have been affected by cohort selection factors and by small statistical power.

RECOMMENDATIONS

Recommendations for further work on this study are 1) to expand the period of follow-up from December 31, 1974 to the present and 2) to include chloroprene-exposed workers at the plant who terminated or died before June 30, 1957. Additional follow-up will increase the number of PYAR and, in turn, the statistical power of the study for specific causes of death. In addition, a modification of the cohort selection criteria would allow for the entry of employees who were hired before June 30, 1957 and who were potentially exposed to higher levels of chloroprene. However, due to the high turnover rate in the 1940's, it is recommended that only individuals with one or more years of employment at the plant be included in the cohort in order to keep follow-up costs at a minimum.

REFERENCES

1. Beaumont JJ and Breslow NE: Power Considerations in Epidemiologic Studies of Vinyl Chloride Workers. American Journal of Epidemiology 114(5): 725-734, 1981

2. Breslow NE: Personal communication, 1981.

3. Diehl AK: Epidemiology of Gallbladder Cancer: A Synthesis of Recent Data. Journal of the National Cancer Institute 65(6): 1209-1214, 1980

4. Fox AJ and Collier PF: Low Mortality Rates in Industrial Cohort Studies Due to Selection for Work and Survival in the Industry. British Journal of Preventive and Social Medicine 30: 225-230, 1976

5. Krain LS: Gallbladder and Extrahepatic Bile Duct Carcinoma: Analysis of 1,808 Cases. Geriatrics 27: 111-117, 1972

6. Mancuso TF and Brennan MJ: Epidemiological Considerations of Cancer of the Gallbladder, Bile Ducts and Salivary Glands in the Rubber Industry. Journal of Occupational Medicine 12(9): 333-341, 1970

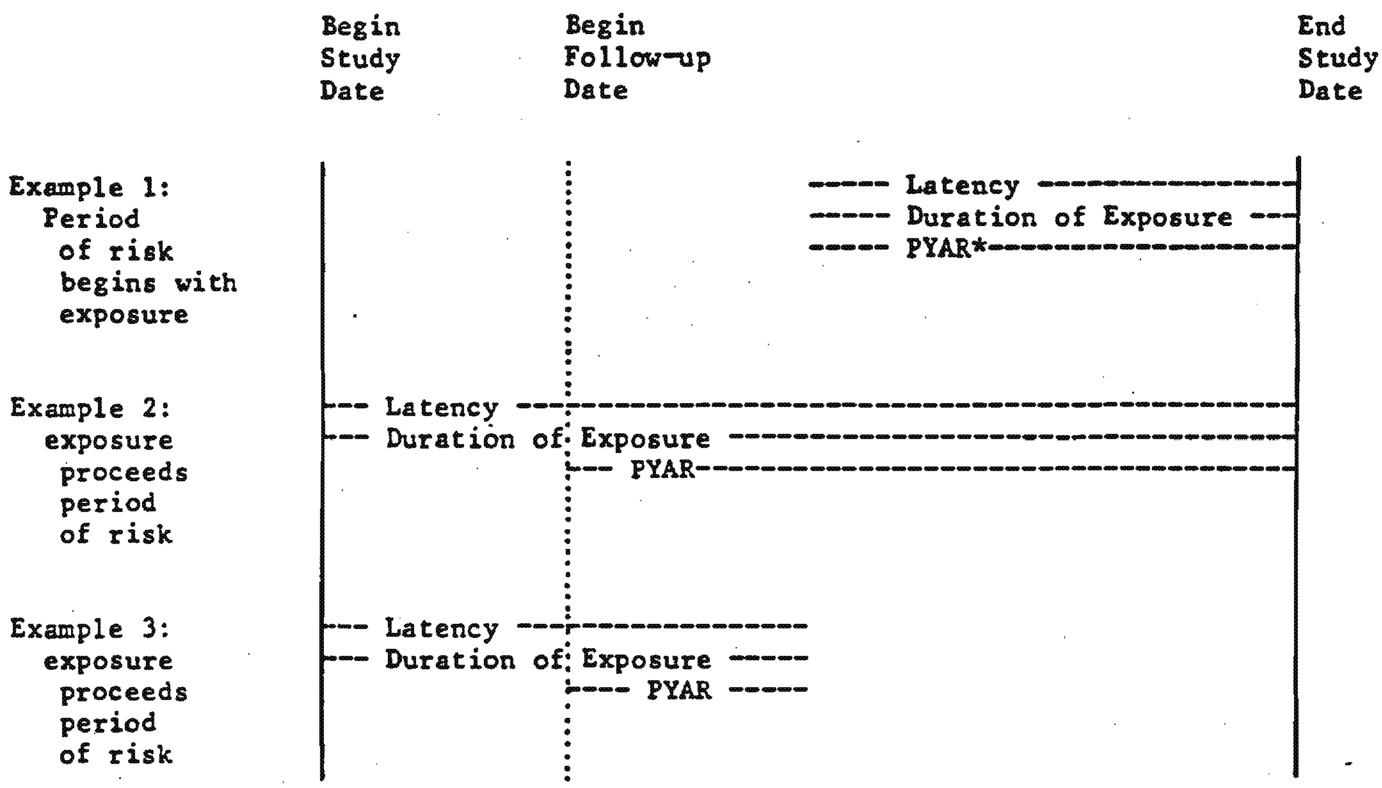
7. McMichael AJ: Standardized Mortality Ratios and the "Healthy Worker Effect": Scratching Beneath the Surface. Journal of Occupational Medicine 18(3): 165-168, 1976

8. Pell S: Mortality of Workers Exposed to Chloroprene. Journal of Occupational Medicine 20(1): 21-29, 1978

9. Rothman KJ and Boice JD: Epidemiologic Analysis With a Programmable Calculator. United States Department of Health, Education, and Welfare, NIH Publication No. 79-1649, June 1979

Figure 1

Examples of the Distribution of Person-Years at Risk
With Respect to Latency and Duration of Exposure



*PYAR = person-years at risk

Table 1

Chloroprene Mortality Study
Classification of Level of Exposure to Chloroprene in Louisville Works Cohort: Representative Occupations

High Exposure

Chemical operator (monomer and polymer)
Clean-up operator
Helper
Poly unit mechanic
Process mechanic
Maintenance mechanic

Moderate Exposure

Chemical operator, monovinylacetylene
Laboratory technician
Machinist
Pump mechanic
Laboratory dishwasher
Shop mechanic

Low or No Exposure

Bagger
Cafeteria worker
Clerk
Guard
Hydrogen chloride operator
Incinerator operator
Power operator
Stores attendant
Tool room attendant
Truck driver
Bag handler
Cook
Counter attendant
Print machine operator
Shipping helper

Varied Exposure

Electrician
Instrument mechanic
Janitor
Lagger
Millwright
Painter
Pipefitter
Rigger
Mechanic

Reference: Pell S: Mortality of Workers Exposed to Chloroprene. Journal of Occupational Medicine 20(1): 21-29, 1978

Table 2

Chloroprene Mortality Study
Vital Status of the Cohort as of December 31, 1974

Alive	1,365	(86.7%)
Deceased	193	(12.2%)
Lost to follow-up	17	(1.1%)
Total	1,575	(100.0%)

Table 3

Chloroprene Mortality Study
Number of Men, Person-Years at Risk,
and Average Person-Years at Risk per Cohort Member
For the Total Cohort and Specific Exposure Categories,
1957-1974

	Number of Men	Person-Years at Risk (PYAR)	Average PYAR per Cohort Member
Total Cohort	1575	26,304	16.7
"High Exposure" Subcohort	851	13,606	16.0
Chemical Operators	457	7,174	15.7
Maintenance Mechanics	372	5,694	15.3
Other High Exposure Occupations	158	1,918	12.1
"Low Exposure" Subcohort	823	12,644	15.4

Table 4

Chloroprene Mortality Study
Age Distribution of the Total Cohort and Specific Exposure Categories
At First Exposure to Chloroprene

	Total Cohort		HES		LES		CO		MM		OHE	
Age	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
<20	35	2.2	7	0.8	28	3.4	4	0.9	3	0.8	0	0.0
20-24	410	26.0	196	23.0	208	25.3	129	28.2	39	10.5	48	30.4
25-29	456	29.0	236	27.8	224	27.2	160	35.0	68	18.3	28	17.7
30-34	332	21.0	172	20.2	169	20.5	87	19.0	87	23.4	26	16.5
35-39	185	11.7	105	12.3	104	12.6	32	7.0	83	22.3	21	13.3
40-44	109	6.9	74	8.7	62	7.5	16	3.5	55	14.8	23	14.6
45-49	45	2.9	41	4.8	28	3.4	15	3.3	28	7.5	8	5.1
50-54	2	0.1	14	1.6	0	0.0	10	2.2	6	1.6	3	1.9
55-59	1	0.1	6	0.7	0	0.0	3	0.7	3	0.8	1	0.6
60-64	0	0.0	0	0.0	0	0.0	1	0.2	0	0.0	0	0.0
Total	1575	100.0	851	100.0	823	100.0	457	100.0	372	100.0	158	100.0
Mean		29.4		30.8		29.5		29.0		34.2		31.4
95% confidence limits		29.0, 29.7		30.3, 31.4		29.1, 30.0		28.3, 29.7		33.4, 34.9		30.0, 32.7
Median		28		29		28		27		34		30

HES = "High Exposure" Subcohort
LES = "Low Exposure" Subcohort
CO = Chemical Operators
MM = Maintenance Mechanics
OHE = Other High Exposure Occupations

Table 5

Chloroprene Mortality Study
Observed and Expected Numbers of Deaths and
Standardized Mortality Ratios for Selected Causes.
Total Cohort, 1957-1974

Cause of Death	ICD Code (7th Rev.)	OBS	EXP	SMR*	95% Confidence Limits
All causes		193	244.9	79	(68, 91)
All malignant neoplasms	140-205	51	47.7	107	(80, 141)
MN of buccal cavity and pharynx	140-148	1	1.7		
MN of digestive system	150-159	19	13.1	145	(87, 227)
MN of esophagus	150	1	1.1		
MN of stomach	151	3	2.4	125	(26, 365)
MN of intestine except rectum	152,153	5	4.0	125	(41, 292)
MN of rectum	154	2	1.5		
MN of biliary passages and liver	155	4	0.7	571	(156,1463)
MN of pancreas	157	4	2.7	148	(40, 379)
MN of respiratory system	160-164	19	17.0	112	(67, 175)
MN of larynx	161	1	0.8		
MN of trachea, bronchus, and lung	162,163	17	16.0	106	(62, 170)
MN of other parts of respiratory system	160,164	1	0.2		

*The SMR is calculated only if the observed number of deaths is two or more.

Table 5
(continued)

Cause of Death	ICD Code (7th Rev.)	OBS	EXP	SMR*	95% Confidence Limits
MN of male genital system	177-179	2	2.2		
MN of prostate	177	2	1.8		
MN of urinary system	180-181	1	2.5		
MN of bladder and other urinary organs	181	1	1.2		
MN of other and unspecified sites	165, 190-199	2	6.2		
MN of lymphatic/ hematopoietic system	200-205	7	5.0	140	(56, 288)
Hodgkin's disease	201	2	0.8		
Leukemia and aleukemia	204	4	1.9	211	(57, 539)
Other neoplasms of lymphatic/ hematopoietic system	202,203,205	1	0.7		
Vascular lesions affecting central nervous system	330-334	18	13.3	135	(80, 214)
Diseases of the circulatory system	400-468	80	109.0	73	(58, 91)
Selected diseases of the digestive system	540,541,543, 560-570,581	6	11.3	53	(19, 116)
Selected diseases of the genito-urinary system	590-600,602, 604,610-637	3	2.5	120	(25, 351)
Unknown causes	780-793,795	3	3.0	100	(21, 293)
Accidents	E800-962	15	19.2	78	(44, 129)
Other Causes		17	38.6	44	(26, 71)

*The SMR is calculated only if the observed number of deaths is two or more.

Table 6

Chloroprene Mortality Study
Observed and Expected Numbers of Deaths and
Standardized Mortality Ratios for Selected Causes.
"High Exposure" Subcohort, 1957-1974

Cause of Death	ICD Code (7th Rev.)	OBS	EXP	SMR*	95% Confidence Limits
All causes		91	120.8	75	(61, 92)
All malignant neoplasms	140-205	25	23.4	107	(69, 158)
MN of buccal cavity and pharynx	140-148	1	0.8		
MN of digestive system	150-159	8	6.4	125	(54, 246)
MN of esophagus	150	1	0.5		
MN of stomach	151	0	1.2		
MN of intestine except rectum	152,153	1	1.9		
MN of rectum	154	1	0.7		
MN of biliary passages and liver	155	3	0.4	750	(155,2192)
MN of pancreas	157	2	1.3		
MN of respiratory system	160-164	10	8.3	120	(58, 222)
MN of larynx	161	0	0.4		
MN of trachea, bronchus, and lung	162,163	10	7.8	128	(61, 236)
MN of other parts of respiratory system	160,164	0	0.1		

*The SMR is calculated only if the observed number of deaths is two or more.

Table 6
(continued)

Cause of Death	ICD Code (7th Rev.)	OBS	EXP	SMR*	95% Confidence Limits
MN of male genital system	177-179	1	1.0		
MN of prostate	177	1	0.9		
MN of urinary system	180-181	0	1.1		
MN of bladder and other urinary organs	181	0	0.6		
MN of other and unspecified sites	165, 190-199	1	3.1		
MN of lymphatic/ hematopoietic system	200-205	4	2.5	160	(44, 410)
Hodgkin's disease	201	2	0.4		
Leukemia and aleukemia	204	2	1.0		
Other neoplasms of lymphatic/ hematopoietic system	202,203,205	0	0.3		
Vascular lesions affecting central nervous system	330-334	3	6.4	47	(10, 137)
Diseases of the circulatory system	400-468	40	53.4	75	(54, 102)
Selected diseases of the digestive system	540,541,543, 560-570,581	3	5.7	53	(11, 154)
Selected diseases of the genito-urinary system	590-600,602, 604,610-637	3	1.2	250	(52, 731)
Unknown causes	780-793,795	1	1.5		
Accidents	E800-962	7	9.8	71	(29, 147)
Other Causes		9	19.2	47	(21, 89)

*The SMR is calculated only if the observed number of deaths is two or more.

Table 7

Chloroprene Mortality Study
Observed and Expected Numbers of Deaths and
Standardized Mortality Ratios for Selected Causes.
"Low Exposure" Subcohort, 1957-1974

Cause of Death	ICD Code (7th Rev.)	OBS	EXP	SMR*	95% Confidence Limits
All causes		102	124.0	82	(67, 100)
All malignant neoplasms	140-205	26	24.3	107	(70, 157)
MN of buccal cavity and pharynx	140-148	0	0.9		
MN of digestive system	150-159	11	6.7	164	(82, 294)
MN of esophagus	150	0	0.6		
MN of stomach	151	3	1.2	250	(52, 731)
MN of intestine except rectum	152,153	4	2.0	200	(54, 512)
MN of rectum	154	1	0.8		
MN of biliary passages and liver	155	1	0.4		
MN of pancreas	157	2	1.4		
MN of respiratory system	160-164	9	8.6	105	(48, 199)
MN of larynx	161	1	0.4		
MN of trachea, bronchus, and lung	162,163	7	8.1	86	(35, 178)
MN of other parts of respiratory system	160,164	1	0.1		

*The SMR is calculated only if the observed number of deaths is two or more.

Table 7
(continued)

Cause of Death	ICD Code (7th Rev.)	OBS	EXP	SMR*	95% Confidence Limits
MN of male genital system	177-179	1	1.2		
MN of prostate	177	1	1.0		
MN of urinary system	180-181	1	1.3		
MN of bladder and other urinary organs	181	1	0.6		
MN of other and unspecified sites	165, 190-199	1	3.1		
MN of lymphatic/ hematopoietic system	200-205	3	2.5	120	(25, 351)
Hodgkin's disease	201	0	0.4		
Leukemia and aleukemia	204	2	1.0		
Other neoplasms of lymphatic/ hematopoietic system	202,203,205	1	0.4		
Vascular lesions affecting central nervous system	330-334	15	6.9	217	(122, 359)
Diseases of the circulatory system	400-468	40	55.7	72	(51, 98)
Selected diseases of the digestive system	540,541,543, 560-570,581	3	5.6	54	(11, 157)
Selected diseases of the genito-urinary system	590-600,602, 604,610-637	0	1.3		
Unknown causes	780-793,795	2	1.5		
Accidents	E800-962	8	9.3	86	(37, 170)
Other Causes		8	19.3	41	(18, 82)

*The SMR is calculated only if the observed number of deaths is two or more.

Table 8

Chloroprene Mortality Study
Observed and Expected Numbers of Deaths and
Standardized Mortality Ratios for Selected Causes.
Chemical Operators, 1957-1974

Cause of Death	ICD Code (7th Rev.)	OBS	EXP	SMR*	95% Confidence Limits
All Causes		31	44.1	70	(48, 100)
All malignant neoplasms	140-205	8	8.2	98	(42, 192)
MN of buccal cavity and pharynx	140-148	1	0.3		
MN of digestive system	150-159	2	2.1		
MN of respiratory system	160-164	3	2.9	103	(21, 302)
MN of male genital system	177-179	0	0.3		
MN of urinary system	180-181	0	0.4		
MN of other and unspecified sites	156B,165, 190-199	0	1.2		
MN of lymphatic/ hematopoietic system	200-205	2	1.0		
Vascular lesions affecting central nervous system	330-334	1	1.8		
Diseases of the circulatory system	400-468	12	18.0	67	(34, 116)
Selected diseases of the digestive system	540,541,543, 560-570,581	1	2.4		
Selected diseases of the genito-urinary system	590-600,602, 604,610-637	2	0.4		
Unknown causes	780-793,795	0	0.6		
Accidents	E800-962	3	5.0	60	(12, 175)
Other causes		4	7.6	53	(14, 135)

*The SMR is calculated only if the observed number of deaths is two or more.

Table 9

Chloroprene Mortality Study
Observed and Expected Numbers of Deaths and
Standardized Mortality Ratios for Selected Causes.
Maintenance Mechanics, 1957-1974

Cause of Death	ICD Code (7th Rev.)	OBS	EXP	SMR*	95% Confidence Limits
All causes		45	64.4	70	(51, 94)
All malignant neoplasms	140-205	12	12.7	94	(49, 165)
MN of buccal cavity and pharynx	140-148	0	0.5		
MN of digestive system	150-159	5	3.6	139	(45, 324)
MN of biliary passages and liver	155	3	0.2	1500	(309,4383)
MN of respiratory system	160-164	4	4.5	89	(24, 228)
MN of male genital system	177-179	1	0.6		
MN of urinary system	180-181	0	0.7		
MN of other and unspecified sites	156B,165, 190-199	1	1.6		
MN of lymphatic/ hematopoietic system	200-205	1	1.3		
Vascular lesions affecting central nervous system	330-334	1	3.8		
Diseases of the circulatory system	400-468	22	29.5	75	(47, 113)
Selected diseases of the digestive system	540,541,543, 560-570,581	2	2.9		
Selected diseases of the genito-urinary system	590-600,602, 604,610-637	1	0.6		
Unknown causes	780-793,795	0	0.8		
Accidents	E800-962	2	4.3		
Other causes		5	9.8	51	(17, 119)

*The SMR is calculated only if the observed number of deaths is two or more.

Table 10

Chloroprene Mortality Study
Observed and Expected Numbers of Deaths and
Standardized Mortality Ratios for Selected Causes.
Other High Exposure Occupations, 1957-1974

Cause of Death	ICD Code (7th Rev.)	OBS	EXP	SMR*	95% Confidence Limits
All causes		16	19.8	81	(46, 131)
All malignant neoplasms	140-205	5	3.9	128	(42, 299)
MN of buccal cavity and pharynx	140-148	0	0.1		
MN of digestive system	150-159	1	1.1		
MN of respiratory system	160-164	3	1.4	214	(44, 626)
MN of male genital system	177-179	0	0.2		
MN of urinary system	180-181	0	0.2		
MN of other and unspecified sites	156B,165, 190-199	0	0.5		
MN of lymphatic/ hematopoietic system	200-205	1	0.4		
Vascular lesions affecting central nervous system	330-334	1	1.1		
Diseases of the circulatory system	400-468	7	9.0	78	(31, 160)
Selected diseases of the digestive system	540,541,543, 560-570,581	0	0.9		
Selected diseases of the genito-urinary system	590-600,602, 604,610-637	0	0.2		
Unknown causes	780-793,795	1	0.2		
Accidents	E800-962	2	1.4		
Other causes		0	3.1		

*The SMR is calculated only if the observed number of deaths is two or more.

Table 11

Chloroprene Mortality Study
Observed and Expected Numbers of Cancer Deaths
by Major Organ System and by Latency
Total Cohort, 1957-1974

		< 10 Years of Latency		10 to 20 Years of Latency		20+ Years of Latency		
Primary Site	ICD Code (7th Rev.)	OBS	EXP	OBS	EXP	OBS	EXP	X^{2*}
All malignant neoplasms	140-205	1	2.0	13	16.9	37	28.8	3.20
Buccal cavity and pharynx	140-148	0	0.1	0	0.6	1	1.0	0.60
Digestive system	150-159	0	0.5	5	4.6	14	8.0	1.59
Respiratory system	160-164	1	0.4	5	5.7	13	10.8	0.01
Male genital system	177-179	0	0.1	0	0.6	2	1.6	0.77
Urinary system	180-181	0	0.1	0	0.8	1	1.6	0.50
Other and unspecified sites	165, 190-199	0	0.4	0	2.5	2	3.3	1.49
Lymphatic/ hematopoietic system	200-205	0	0.4	3	2.0	4	2.6	0.29

*$p < .05$ if $X^2 > 3.84$

Table 12

Chloroprene Mortality Study
Observed and Expected Numbers of Cancer Deaths
by Major Organ System and by Latency
"High Exposure" Subcohort, 1957-1974

		<10 Years of Latency		10 to 20 Years of Latency		20+ Years of Latency		
Primary Site	ICD Code (7th Rev.)	OBS	EXP	OBS	EXP	OBS	EXP	X^{2*}
All malignant neoplasms	140-205	3	2.0	6	8.9	16	12.6	0.28
Buccal cavity and pharynx	140-148	0	0.1	0	0.3	1	0.4	0.80
Digestive system	150-159	1	0.5	2	2.4	5	3.5	0.01
Respiratory system	160-164	1	0.6	3	3.0	6	4.7	0.0009
Male genital system	177-179	0	0.1	0	0.3	1	0.7	0.48
Urinary system	180-181	0	0.1	0	0.4	0	0.7	0.00
Other and unspecified sites	165, 190-199	0	0.3	0	1.3	1	1.5	0.87
Lymphatic/ hematopoietic system	200-205	1	0.3	1	1.1	2	1.1	0.04

*$p < .05$ if $X^2 > 3.84$

Table 13

Chloroprene Mortality Study
Observed and Expected Numbers of Cancer Deaths
by Major Organ System and by Latency
"Low Exposure" Subcohort, 1957-1974

Primary Site	ICD Code (7th Rev.)	< 10 Years of Latency		10 to 20 Years of Latency		20+ Years of Latency		
		OBS	EXP	OBS	EXP	OBS	EXP	X^{2*}
All malignant neoplasms	140-205	0	1.0	7	8.5	19	14.9	2.06
Buccal cavity and pharynx	140-148	0	0.0	0	0.3	0	0.5	0.00
Digestive system	150-159	0	0.2	3	2.3	8	4.1	0.67
Respiratory system	160-164	0	0.2	3	2.8	6	5.6	0.04
Male genital system	177-179	0	0.0	0	0.3	1	0.8	0.37
Urinary system	180-181	0	0.0	0	0.4	1	0.8	0.50
Other and unspecified sites	165, 190-199	0	0.2	0	1.2	1	1.7	0.70
Lymphatic/ hematopoietic system	200-205	0	0.2	1	1.0	2	1.3	0.37

*$p < .05$ if $X^2 > 3.84$

Table 14

Chloroprene Mortality Study
Observed and Expected Numbers of Cancer Deaths
by Major Organ System and by Latency
Chemical Operators, 1957-1974

		< 10 Years of Latency		10 to 20 Years of Latency		20+ Years of Latency		
Primary Site	ICD Code (7th Rev.)	OBS	EXP	OBS	EXP	OBS	EXP	X^{2*}
All malignant neoplasms	140-205	1	0.9	3	3.0	4	4.3	0.02
Buccal cavity and pharynx	140-148	0	0.0	0	0.1	1	0.2	0.50
Digestive system	150-159	0	0.2	1	0.7	1	1.1	0.01
Respiratory system	160-164	0	0.2	1	1.0	2	1.7	0.17
Male genital system	177-179	0	0.0	0	0.0	0	0.1	0.00
Urinary system	180-181	0	0.0	0	0.1	0	0.2	0.00
Other and unspecified sites	165, 190-199	0	0.2	0	0.5	0	0.6	0.00
Lymphatic/ hematopoietic system	200-205	1	0.2	1	0.4	0	0.4	1.75

*$p < .05$ if $X^2 > 3.84$

Table 15

Chloroprene Mortality Study
Observed and Expected Numbers of Cancer Deaths
by Major Organ System and by Latency
Maintenance Mechanics, 1957-1974

Primary Site	ICD Code (7th Rev.)	<10 Years of Latency OBS	<10 Years of Latency EXP	10 to 20 Years of Latency OBS	10 to 20 Years of Latency EXP	20+ Years of Latency OBS	20+ Years of Latency EXP	X^{2*}
All malignant neoplasms	140-205	1	1.4	2	4.9	9	6.4	1.94
Buccal cavity and pharynx	140-148	0	0.1	0	0.2	0	0.2	0.00
Digestive system	150-159	0	0.4	1	1.4	4	1.8	1.83
Respiratory system	160-164	1	0.4	1	1.7	2	2.4	0.35
Male genital system	177-179	0	0.0	0	0.2	1	0.4	0.50
Urinary system	180-181	0	0.0	0	0.1	0	0.2	0.00
Other and unspecified sites	165, 190-199	0	0.2	0	0.7	1	0.7	1.01
Lymphatic/ hematopoietic system	200-205	0	0.2	0	0.5	1	0.6	0.92

*$p < .05$ if $X^2 > 3.84$

Table 16

Chloroprene Mortality Study
Observed and Expected Numbers of Cancer Deaths
by Major Organ System and by Latency
Other High Exposure Occupations, 1957-1974

		< 10 Years of Latency		10 to 20 Years of Latency		20+ Years of Latency		
Primary Site	ICD Code (7th Rev.)	OBS	EXP	OBS	EXP	OBS	EXP	X^{2*}
All malignant neoplasms	140-205	1	0.5	1	1.4	3	2.0	0.002
Buccal cavity and pharynx	140-148	0	0.0	0	0.1	0	0.1	0.00
Digestive system	150-159	1	0.1	0	0.4	0	0.6	0.00
Respiratory system	160-164	0	0.2	1	0.5	2	0.7	0.55
Male genital system	177-179	0	0.0	0	0.0	0	0.1	0.00
Urinary system	180-181	0	0.0	0	0.1	0	0.1	0.00
Other and unspecified sites	165, 190-199	0	0.1	0	0.2	0	0.2	0.00
Lymphatic/ hematopoietic system	200-205	0	0.1	0	0.2	1	0.2	1.14

*$p < .05$ if $X^2 > 3.84$

Table 17

Chloroprene Mortality Study
Observed and Expected Numbers of Cancer Deaths
by Major Organ System and by Duration of Exposure
Total Cohort, 1957-1974

		< 10 Years of Exposure		10 to 20 Years of Exposure		20+ Years of Exposure		
Primary Site	ICD Code (7th Rev.)	OBS	EXP	OBS	EXP	OBS	EXP	X^{2*}
All malignant neoplasms	140-205	4	4.3	21	19.8	26	23.5	0.09
Buccal cavity and pharynx	140-148	0	0.1	0	0.7	1	0.9	0.76
Digestive system	150-159	1	1.1	8	5.6	10	6.3	0.25
Respiratory system	160-164	1	1.3	6	6.6	12	9.1	0.68
Male genital system	177-179	0	0.2	2	1.0	0	1.0	0.64
Urinary system	180-181	0	0.2	1	1.0	0	1.2	0.42
Other and unspecified sites	165, 190-199	0	0.7	1	2.7	1	2.8	0.11
Lymphatic/ hematopoietic system	200-205	2	0.7	3	2.2	2	2.1	1.13

*$p < .05$ if $X^2 > 3.84$

Table 18

Chloroprene Mortality Study
Observed and Expected Numbers of Cancer Deaths
by Major Organ System and by Duration of Exposure
"High Exposure" Subcohort, 1957-1974

		<10 Years of Exposure		10 to 20 Years of Exposure		20+ Years of Exposure		
Primary Site	ICD Code (7th Rev.)	OBS	EXP	OBS	EXP	OBS	EXP	X^{2*}
All malignant neoplasms	140-205	9	7.4	9	8.8	7	7.1	0.18
Buccal cavity and pharynx	140-148	0	0.3	0	0.3	1	0.3	1.50
Digestive system	150-159	4	2.0	4	2.5	0	1.9	3.08
Respiratory system	160-164	2	2.5	2	3.0	6	2.8	2.07
Male genital system	177-179	0	0.3	1	0.4	0	0.3	0.00
Urinary system	180-181	0	0.4	0	0.5	0	0.4	0.00
Other and unspecified sites	165, 190-199	1	1.1	0	1.2	0	0.8	1.35
Lymphatic/ hematopoietic system	200-205	2	0.9	2	0.9	0	0.6	0.92

*$p < .05$ if $X^2 > 3.84$

Table 19

Chloroprene Mortality Study
Observed and Expected Numbers of Cancer Deaths
by Major Organ System and by Duration of Exposure
"Low Exposure" Subcohort, 1957-1974

		< 10 Years of Exposure		10 to 20 Years of Exposure		20+ Years of Exposure		
Primary Site	ICD Code (7th Rev.)	OBS	EXP	OBS	EXP	OBS	EXP	X^{2*}
All malignant neoplasms	140-205	2	2.4	11	10.1	13	11.8	0.07
Buccal cavity and pharynx	140-148	0	0.1	0	0.4	0	0.4	0.00
Digestive system	150-159	1	0.6	3	2.9	7	3.2	0.65
Respiratory system	160-164	0	0.7	4	3.3	5	4.5	0.25
Male genital system	177-179	0	0.1	1	0.5	0	0.5	0.32
Urinary system	180-181	0	0.1	1	0.5	0	0.6	0.42
Other and unspecified sites	165, 190-199	0	0.4	1	1.3	0	1.4	0.21
Lymphatic/ hematopoietic system	200-205	1	0.4	1	1.1	1	1.0	0.34

*$p < .05$ if $X^2 > 3.84$

Table 20

Chloroprene Mortality Study
Observed and Expected Numbers of Cancer Deaths
by Major Organ System and by Duration of Exposure
Chemical Operators, 1957-1974

		< 10 Years of Exposure		10 to 20 Years of Exposure		20+ Years of Exposure		
Primary Site	ICD Code (7th Rev.)	OBS	EXP	OBS	EXP	OBS	EXP	X^{2*}
All malignant neoplasms	140-205	3	2.9	2	2.4	3	2.8	0.00
Buccal cavity and pharynx	140-148	0	0.1	0	0.1	1	0.1	1.50
Digestive system	150-159	2	0.7	0	0.6	0	0.7	2.85
Respiratory system	160-164	0	1.0	1	0.8	2	1.1	1.65
Male genital system	177-179	0	0.1	0	0.1	0	0.1	0.00
Urinary system	180-181	0	0.1	0	0.1	0	0.1	0.00
Other and unspecified sites	165, 190-199	0	0.5	0	0.4	0	0.4	0.00
Lymphatic/ hematopoietic system	200-205	1	0.4	1	0.3	0	0.3	0.46

*$p < .05$ if $X^2 > 3.84$

Table 21

Chloroprene Mortality Study
Observed and Expected Numbers of Cancer Deaths
by Major Organ System and by Duration of Exposure
Maintenance Mechanics, 1957-1974

Primary Site	ICD Code (7th Rev.)	<10 Years of Exposure OBS	<10 Years of Exposure EXP	10 to 20 Years of Exposure OBS	10 to 20 Years of Exposure EXP	20+ Years of Exposure OBS	20+ Years of Exposure EXP	X^{2*}
All malignant neoplasms	140-205	3	4.0	7	5.3	2	3.4	0.02
Buccal cavity and pharynx	140-148	0	0.1	0	0.2	0	0.1	0.00
Digestive system	150-159	1	1.1	4	1.5	0	0.9	0.17
Respiratory system	160-164	1	1.4	1	1.8	2	1.3	0.49
Male genital system	177-179	0	0.2	1	0.3	0	0.2	0.00
Urinary system	180-181	0	0.2	0	0.3	0	0.2	0.00
Other and unspecified sites	165, 190-199	1	0.6	0	0.6	0	0.4	1.25
Lymphatic/ hematopoietic system	200-205	0	0.5	1	0.5	0	0.3	0.04

*$p < .05$ if $X^2 > 3.84$

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Comparison of standardized mortality ratios (SMRs) obtained from use of reference populations based on a company-wide registry cohort to SMRs calculated against local and national rates

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Abstract

The DuPont Company has maintained a mortality registry for all active and pensioned U.S. employees since 1957. Standardized mortality ratios (SMRs) for each plant site in the U.S. can be calculated based on the comparison with the entire U.S. DuPont population or with a regional subset of DuPont employees. We compared the SMRs derived from a large, international cohort mortality study of chloroprene workers (IISRP study) with those derived from the entire DuPont Registry and appropriate subpopulations of the registry for two U.S. neoprene plants—Louisville (Kentucky) and Pontchartrain (Louisiana).

SMRs from the IISRP study for the Louisville cohort based on national rates for all causes of death, all cancers, respiratory cancer, and liver cancer are higher than those based on local mortality rates. Both the national and local comparisons (several counties surrounding each plant) for all-cancer SMRs are lower than 1.0, the local comparison being statistically significantly reduced. In contrast, the SMRs based on the total U.S. DuPont worker mortality rates for all causes of death (1.13), all cancers (1.11), and respiratory cancers (1.37) are statistically significantly increased. The SMR for liver cancer (1.27), although elevated, is not statistically significant. SMRs based on DuPont Region 1 were closer to 1.0, and the SMR for all cancers was no longer significant.

Stratification of the Louisville subcohort of males using the same cumulative exposure categories used in the IISRP study yielded SMRs calculated against DuPont Region 1 that were generally higher than those calculated against U.S. and local rates. Only the third exposure category showed SMRs statistically significantly above 1.0 for all cancers and for cancer of bronchus, trachea, and lung. However, there does not appear to be an exposure–response trend.

The SMRs from the IISRP study for the Pontchartrain cohort based on national rates are higher than those based on local rates for all causes of death, but all are less than 1.0. The all-cause SMRs for both local and national comparisons are significantly reduced. There were no deaths from liver cancers observed in this cohort. Comparisons of the Pontchartrain cohort against the total U.S. DuPont worker mortality rates resulted in higher SMRs for all causes of death (0.98), all cancers (1.03), and respiratory cancer (1.08), but none were statistically significant. SMRs based on DuPont Region 2 showed very little change from those based on the total registry.

The use of reference rates based on regional workers in the same large company produces SMRs lower than those based on the entire company population (regional socio-cultural effects) but higher than those based on geographically closer local general populations (healthy worker effect). The healthy worker effect is seen in cancer mortality rates as well as in other chronic diseases.

Keywords: Chloroprene; Healthy worker effect; Standardized mortality ratio; Occupational epidemiology

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1. Introduction

The University of Pittsburgh School of Public Health in collaboration with the University of Oklahoma School of Health Sciences recently completed a mortality study of four chloroprene production facilities [1,2], hereafter referred to as the Chloroprene Cohort Study. The summary results of this large, international study that included detailed exposure reconstruction and job–task classification for potential exposures to chloroprene monomer and vinyl chloride indicate no increased mortality risk from all causes, all cancers, and lung or liver cancer. In fact, the standardized mortality ratios (SMRs) based on external comparisons of all causes and all cancers to national and local rates were often below 1.0, sometimes being statistically significantly reduced. Although under-ascertainment of the population at risk and/or the total number of deaths in the study cohort can lead to lower SMRs, the extensive follow-up methodologies utilized in the chloroprene cohort mortality study make this unlikely.

Reduction in all-cause mortality in working populations has been well documented [3–7], but effects of cancer mortality are less striking. The healthy worker effect (HWE) is a bias found in occupational studies when mortality rates in working populations are compared with the rates in general populations that include individuals not in the workforce for a variety of reasons, including poor health. Although the HWE can be strong for some chronic diseases, such as chronic respiratory diseases, kidney disease, and cardiovascular disease, an HWE for cancer risk is not as obvious and is usually explained by the fact that cancer is less common among those entering the workforce at young ages [8].

In the report to the Workers Compensation Board on the Healthy Worker Effect [9], the expert panel summarized their consensus findings. In general, the HWE is the result of the following:

- selection bias (both by the employers and the employees at the time of hire and afterwards);
- classification bias (resulting from differences between the methods used to establish the data for workers and the reference populations, such as death ascertainment, diagnostic criteria, or exposure classification);
- confounding effects (between the observed worker population and the referent population).

One obvious solution for eliminating the bias introduced by the HWE is to choose a reference population composed of workers with similar demographic characteristics, the likelihood of obtaining and retaining employment, and the same potential for life-time follow-up. The DuPont Company has maintained a Mortality Registry for all active and pensioned U.S. employees since 1957. This registry provides the expected number of deaths used in calculating SMRs for each plant site in the U.S. as part of the Epidemiology Surveillance Program. This paper examines the evidence for an HWE on cancer mortality rates with additional analysis using the DuPont Mortality Registry as the reference population for two of the subcohorts in the larger international chloroprene study cohort.

2. Materials and methods

2.1. The DuPont Mortality Registry

The DuPont Company has maintained a Mortality Registry for all active and pensioned U.S. employees since 1957. This registry provides the expected number of deaths used in calculating SMRs for each plant site in the U.S. as part of the DuPont Epidemiology Surveillance Program. Deaths are reported to the registry by the Corporate Benefits Division through death certificates that accompany life insurance claims filed by beneficiaries of the deceased employees and pensioners. Until recently, employment duration of at least 15 years was required for pensioning. However, changes in vesting strategies and insurance policies created fiduciary responsibility on the part of the company that now requires notification of death of former employees. Of those who had left the company between 1950 and 1979, 91.7% were either pensioned or covered by some other vested benefit. Of the employees leaving the company between 1980 and 2005, only 60% were pensioned or covered by other vested benefits. However, deceased non-pensioned employees terminating after 1979 have been added to the registry through the use of the National Death Index database, NDI *Plus*. Deaths are ascribed to the observed numbers for the plant site at which the employee worked at the time of death or separation, or the site at which the pensioner worked at the time of retirement.

The Employee Registry, which provides demographic information on almost every person ever employed by U.S. DuPont, is updated with a monthly upload from Corporate Human Resources. There is no minimum requirement of employment duration for inclusion in the registry. The Epidemiology Employee Registry currently holds approximately 265,000 individuals representing 2466 current and historic businesses and operating sites.

Table 1
Study population characteristics

	Louisville	Pontchartrain
Subjects	5507	1357
Observed deaths	2403	102
Person-years	197919	30660
Follow-up start	1949	1962

2.2. Development of occupational reference files

We created three separate reference files using the DuPont company-wide rates, thereby establishing occupational reference populations based on the following: (1) the total registry population; (2) a regional population for comparison to the Louisville cohort (DuPont Region 1); and (3) a regional population for comparison to the Pontchartrain cohort (DuPont Region 2). DuPont Region 1 comprised the states of Indiana, Kentucky, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, and West Virginia. DuPont Region 2 contained Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, Missouri, Oklahoma, South Carolina, and Texas.

The cohort files from the IISRP chloroprene study representing the two U.S. facilities – Louisville, Kentucky and Pontchartrain, Louisiana – were used as study files for comparison against these U.S. and regional occupational files using OCMAP® (Occupational Cohort Mortality Analysis Program) Plus analytic software. OCMAP® compares expected numbers of deaths for a specific gender, 5-year time, and 5-year age categories for each cause of death with those observed in the study population [10]. For the DuPont worker mortality rates, race was not an adjustment variable. No additional follow-up methods or efforts were applied to the cohort files. Our SMR analysis was limited to all causes of death, all cancers, liver cancer, and respiratory cancers.

Stratification of the Louisville male subcohort by the cumulative exposure categories developed by Hall et al. [11,12] was used for comparing SMRs against the reference populations in relation to exposure to chloroprene.

3. Results

Characteristics of the study population are shown in Table 1. It is clear that the results from the Louisville cohort, based on 197,919 person-years and 2403 deaths will provide more stable estimates of risk than the Pontchartrain cohort based on 30,660 person-years and only 102 deaths.

Table 2 shows the SMRs for the Louisville cohort using the national and local mortality rates from the IISRP chloroprene study as well as the total DuPont Registry and the regional DuPont rates. The SMRs based on comparison with total U.S. national rates for all causes of death, all cancers, respiratory cancer, and liver cancer are higher than those based on local (surrounding counties) mortality rates. Both the national and local all-cancer SMRs for the IISRP chloroprene study are lower than 1.0, the local comparison being statistically significantly reduced.

The SMRs for the Louisville cohort based on the U.S. DuPont worker mortality rates and the rates based on DuPont Region 1 are higher. For the total registry, the SMRs for all causes of death (1.13), all cancers (1.11), and respiratory cancers (1.37) are all more than 1.0 and are statistically significant. The SMR for liver cancer (1.27), although elevated, is not statistically significant. The SMRs based on DuPont Region 1 for all causes of death (1.05), all cancers (1.07), and respiratory cancers (1.20) are all closer to 1.0, and the SMR for all cancers is not statistically significant. The SMR for liver cancer (1.21), although elevated, remain not statistically significant.

Table 3 shows the results from the IISRP chloroprene study for the Pontchartrain cohort using both national and local mortality rates as reference, as well as the total DuPont Registry and the regional DuPont rates. The

Table 2
SMRs for chloroprene study of Louisville cohort using national and local rates (Marsh et al.) and DuPont Registry rates for reference

	Observed	U.S. national	U.S. local[a,b]	DuPont national	DuPont Region 1
All causes of death	2403	0.87**	0.77**	1.13*	1.05*
All cancers	652	0.96	0.78**	1.11*	1.07
Respiratory cancers	266	1.12	0.79**	1.37*	1.20*
Liver cancer	17	1.12	0.96	1.27	1.21

*$p<0.05$, **$p<0.01$.

[a] Local mortality rates by Marsh et al. were the counties Jefferson, KY; Bullitt, KY; Clark, IN; Floyd, IN; and Harrison, IN.

[b] All-cause SMRS limited to 1960–2000; therefore, the observed number was 2357.

Table 3
SMRs for chloroprene study of Pontchartrain cohort using national and local rates (Marsh et al.) and DuPont Registry rates for reference

	Observed	U.S national	SMR local[a]	DuPont national	DuPont Region 2
All causes of death	102	0.62**	0.57**	0.98	0.96
All cancers	34	0.81	0.73	1.03	1.06
Respiratory cancers	12	0.78	0.67	1.08	1.05
Liver cancer	0	–	–	–	–

*$p<0.05$, **$p<0.01$.
[a] Local mortality rates by Marsh et al. were the counties East Baton Rouge, Jefferson, Ascension, St. Charles, St. James, Tangipahoa, and St. John.

Pontchartrain SMRs for the IISRP chloroprene study based on national rates are slightly higher than those based on local rates for all causes of death, all cancers, and respiratory cancer, but all are less than 1.0. The all-cause SMRs for both local and national comparisons are significantly reduced. There were no deaths from liver cancers observed in this cohort.

Comparing the IISRP chloroprene study Pontchartrain cohort to the DuPont rate files produced results similar to those from the same comparisons with Louisville. SMRs from comparison to the total U.S. DuPont worker mortality rates and the DuPont Region 2 rates were higher than those in the IISRP chloroprene study. The SMRs are higher for all causes of death (0.98), all cancers (1.03), and respiratory cancer (1.08) than to the results from the IISRP chloroprene study. However, none were statistically significant. The SMRs based on DuPont Region 2 are 0.96 for all causes of death, 1.06 for all cancers, and 1.05 for respiratory cancer, none of which are statistically significant or very different from those based on the total registry.

In order to investigate the effect of exposure on SMRs based on the DuPont Regional reference data, we stratified the Louisville male subcohort by the same cumulative exposure groups defined by Hall et al. [11,12] and examined all cancers combined and cancer of the bronchus, trachea, and lung. We did not do this analysis for cancer of biliary passages and liver because the small number of cases in each exposure category would result in highly unstable estimates of the SMRs.

Table 4 shows our results and compares these to the SMRs for Louisville generated by Marsh et al. against the local counties that comprised the hiring area for the plant. SMRs calculated against DuPont Region 1 were generally higher; the third exposure category showed SMRs statistically significantly above 1.0 for all cancers and for cancer of bronchus, trachea, and lung. However, there does not appear to be a dose response.

Table 4
SMRs by cumulative exposure category for Louisville

Cumulative exposure	Data based on DuPont Region 1, males only				Data based on local counties, adjusted for sex[a]		
	Deaths	Pyrs	SMR	95% CI	Pyrs	SMR	95% CI
All malignant neoplasms							
<4.747	140	54,503	1.17	0.98–1.38	68,918	0.75**	0.64–0.87
4.747 to ≤55.919	156	53,074	1.08	0.91–1.26	56,737	0.71**	0.60–0.82
55.919 to ≤164.03	159	38,294	1.22*	1.04–1.43	39,840	0.79**	0.68–0.92
>164.03	161	30,889	0.97	0.83–1.13	32,424	0.70**	0.60–0.82
Lung cancer[b]							
<4.747	50	54,503	1.15	0.85–1.51	68,918	0.71**	0.55–0.91
4.747 to ≤55.919	64	53,074	1.22	0.94–1.56	56,737	0.71**	0.55–0.90
55.919 to ≤164.03	71	38,294	1.51**	1.18–1.90	39,840	0.92	0.73–1.15
>164.03	57	30,889	0.97	0.73–1.26	32,424	0.65**	0.50–0.84

*$p<0.05$, **$p<0.01$. All malignant neoplasms and cancer of the trachea, bronchus, and lung, calculated against DuPont Region 1 and compared with SMRs against local counties.
[a] Marsh et al. [2].
[b] SMRs based on local counties were for the category respiratory system cancer; those based on DuPont Region 1 were for the category Trachea, Bronchus, and Lung.

4. Discussion

The increase was not unexpected in the SMRs for the Louisville and Pontchartrain cohorts based on the national and regional DuPont worker mortality rates compared with the results based on national and local general population mortality rates. Much of the increase in SMRs was likely due to the reduction in bias from the healthy worker effect and differences in regional rates due to culture, ethnicity, and/or lifestyle. The statistically significantly higher SMRs for the Louisville cohort for all causes, all cancers, and respiratory cancers were somewhat surprising. The SMR for liver cancer was elevated, but the increase was not statistically significant.

The statistically significant increases observed in the Louisville cohort compared with the DuPont rates may be attributable to the cause-specific mortality experiences of the local general populations. According to the U.S. National Cancer Institute (NCI) data, the Kentucky white male general population has higher mortality rates than the rest of the U.S. population. Specifically, the lung cancer mortality rate in Kentucky is approximately 44% higher than that in the U.S. The potential effect of regional differences in life style, diet, and other socio-cultural factors is supported by the lowering of most SMRs closer to 1.0 when comparisons are made against the DuPont Regional rate files. These results suggest that the most appropriate external comparison for occupational cohorts may be working populations from surrounding areas.

The pattern of results for the Pontchartrain cohort was somewhat different from that of Louisville, in the sense that the all-cause SMR was less than 1.0 (0.98) and the all cancer and respiratory cancer SMRs were not statistically significantly increased although both were greater than 1.0. The potential impact of local population mortality patterns on the Pontchartrain results is again suggested by the NCI data for Louisiana that indicates that this state also shows higher mortality rates than the U.S. as a whole. In addition, the use of the DuPont Region 2 rates minutely affected these SMRs. These observations reinforce the consensus that a simple, universal adjustment cannot be made for the HWE, as workers may reflect their local and regional populations more strongly than they reflect the mortality experience of a geographically widely dispersed worker population.

There is some published evidence that the healthy worker effect can reduce cancer mortality rates to a significant degree, possibly due to diagnosis occurring at earlier stages of cancer in occupational cohorts, leading to increased cure rates and/or prolonged mean survival times [13]. We have presented data that demonstrate that a working population may show decreased cancer SMRs when compared with local reference populations and increased cancer SMRs when compared with a regional occupational reference population, even in the presence of exposure-based evidence of no increased occupational risk from that particular exposure. This is presumably due to the inability of "healthy workers" to completely offset higher local area mortality rates.

SMRs for subcohorts based on exposure category stratification were examined. A valid comparison of the SMRs for each exposure category with the others depends on there being no significant differences in potential confounders such as age, duration of hire, and year of hire between the members of each category. Because each cohort member could contribute person-years to more than one exposure category, comparison of exposure category demographics was difficult. However, within that limitation, comparison of each exposure stratum against the DuPont Regional reference population did not show a dose response in the SMRs.

For all a priori causes of interest and for both cohorts, the results by Marsh et al. demonstrated that the national rates produced higher SMRs than the local rates although all-cause mortality was significantly below 1.0 for both these comparisons. The use of reference rates based on regional workers in the same large company produces SMRs lower than those based on the entire company population (regional socio-cultural effects) but higher than those based on geographically closer local general populations (healthy worker effect). These observations suggest that active participation in the workforce (i.e., the healthy worker effect) impacts mortality risks not only for all causes and external causes of death, but also for cancer mortality risks, sometimes to a significant degree. It appears that very low SMRs for cancer deaths for occupational cohorts compared with local or national general population reference rates may reflect genuine differences in health status or better health care opportunities and not merely be caused by under-ascertainment of deaths.

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References

[1] G.M. Marsh, A.O. Youk, J.M. Buchanich, M. Cunningham, N.A. Esmen, T.A. Hall, M.L. Phillips, Mortality patterns among industrial workers exposed to chloroprene and other substances. I. General mortality patterns, Chem. Biol. Interact. (2006).

[2] G.M. Marsh, A.O. Youk, J.M. Buchanich, M. Cunningham, N.A. Esmen, T.A. Hall, M.L. Phillips, Mortality patterns among industrial workers exposed to chloroprene and other substances. II. Mortality in relation to exposure, Chem. Biol. Interact. (2006).

[3] E.S. Gilbert, Some confounding factors in the study of mortality and occupational exposures, Am. J. Epidemiol. 116 (1982) 177–188.

[4] R.W. Morgan, M.A. Kelsh, K. Zhao, S. Heringer, Mortality of aerospace workers exposed to trichloroethylene, Epidemiology 9 (1998) 424–431.

[5] H. Checkoway, N.E. Pearce, Research Methods in Occupational Epidemiology, Oxford University Press, New York, 1989.

[6] C.S. Lea, I. Hertz-Picciotto, A. Andersen, J. Chang-Claude, J.H. Olsen, A.C. Pesatori, L. Teppo, P. Westerholm, P.D. Winter, P. Boffetta, Gender differences in the healthy worker effect among synthetic vitreous fiber workers, Am. J. Epidemiol. 150 (1999) 1099–1106.

[7] A.J. McMichael, Standardized mortality ratios and the "healthy worker effect": scratching beneath the surface, J. Occup. Med. 18 (1976) 165–168.

[8] G. Gridley, O. Nyren, M. Dosemeci, T. Moradi, H. Adami, L. Carroll, S.H. Zahm, Is there a healthy worker effect for cancer incidence among women in Sweden? Am. J. Ind. Med. 36 (1999) 193–199.

[9] Report to the Workers Compensation Board on the Healthy Worker Effect, Industrial Diseases Standards Panel, Ministry of Labour of the Government of Ontario, Published June 1988 (ISBN 0-7729-4335-4), available online at www.canoshweb.org/odp/html/JUL1988.htm.

[10] G.M. Marsh, A.O. Youk, R.A. Stone, S.S. Sefcik, C.A. Alcorn, OCMAP-PLUS: a new occupational cohort mortality analysis program for multifactor work history and exposure-based analysis, J. Occup. Environ. Med. 40 (1998) 351–362.

[11] N.A. Esmen, T.A. Hall, M.L. Phillips, G.M. Marsh, Chemical process based reconstruction of exposures for an epidemiological study. I. Theoretical and methodological issues, Chem. Biol. Interact. (2006).

[12] N.A. Esmen, K.J. Kennedy, T.A. Hall, M.L. Phillips, G.M. Marsh, Classification of worker exposures, Chem. Biol. Interact. (2006).

[13] R.T. Gun, N.L. Pratt, E.C. Griffith, G.G. Adams, J.A. Bisby, K.L. Robinson, Update of a prospective study of mortality and cancer incidence in the Australian petroleum industry, Occup. Environ. Med. 61 (2004) 150–156.

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Mortality patterns among industrial workers exposed to chloroprene and other substances I. General mortality patterns

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Abstract

We conducted an historical cohort study to investigate the mortality experience of industrial workers potentially exposed to chloroprene (CD) and other substances, including vinyl chloride (VC), with emphasis on cancer mortality, including respiratory system (RSC) and liver. In 1999, the International Agency for Research on Cancer (IARC) classified CD as a possible carcinogen (Group 2B); VC was classified in 1987 as a known human carcinogen (Group 1).

Subjects were 12,430 workers ever employed at one of two U.S. industrial sites (Louisville, KY ($n = 5507$) and Pontchartrain, LA ($n = 1357$)) or two European sites (Maydown, Northern Ireland ($n = 4849$) and Grenoble, France ($n = 717$)), with earliest CD production dates ranging from 1942 (L) to 1969 (P). Two sites (L and M) synthesized CD with the acetylene process that produced VC exposures. We determined vital status through 2000 for 95% of subjects and cause of death for 95% of the deaths. Historical exposures for individual workers were estimated quantitatively for CD and VC. Workers ever exposed to CD ranged from 92.3% (M) to 100% (G); to VC from 5.5% (M) to 22.7% (L). We computed standardized mortality ratios (SMRs) (using national and regional standard populations) in relation to selected demographic, work history and exposure factors. We used worker pay type (white or blue collar) as a rough surrogate for lifetime smoking history.

For the combined cohort, SMRs (95% CIs) for all causes combined, all cancers combined, RSC and liver cancer were, respectively, 0.72 (0.69–0.74), 0.73 (0.68–0.78), 0.75 (0.67–0.84) and 0.72 (0.43–1.13). Site-specific (L, M, P and G, respectively) SMRs were: for all cancers combined: 0.75 (0.69–0.80), 0.68 (0.56–0.80), 0.68 (0.47–0.95) and 0.59 (0.36–0.91); for RSC: 0.75 (0.66–0.85), 0.79 (0.58–1.05), 0.62 (0.32–1.09) and 0.85 (0.41–1.56); for liver cancer: 0.90 (0.53–1.44) (17 deaths), 0.24 (0.01–1.34) (1 death), 0.0 (0–2.39) (no deaths) and 0.56 (0.01–3.12) (1 death). Among all workers ever exposed to CD, SMRs were: for all cancers combined: 0.71 (0.66–0.76); for RSC: 0.75 (0.67–0.84); for liver cancer: 0.71 (0.42–1.14). We also observed no increased mortality risks among cohort subgroups defined by race, gender, worker pay type, worker service type (short/long term), time period, year of hire, age at hire, duration of employment, the time since first employment, and CD or VC exposure status (never/ever exposed).

In summary, our study has many strengths and is the most definitive study of the human carcinogenic potential of exposure to CD conducted to date. We conclude that persons exposed to chloroprene or vinyl chloride at the levels encountered in the four study sites did not have elevated risks of mortality from any of the causes of death examined, including all cancers combined and lung and

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liver cancer, the cancer sites of *a priori* interest. This conclusion is corroborated by our detailed analyses of mortality in relation to qualitative and quantitative exposures to CD and VC at each of the four study sites, reported in our companion paper (Marsh et al., submitted for publication).

Keywords: Chloroprene; Vinyl chloride; Cohort study; Liver cancer; Lung cancer; Mortality

1. Introduction

Chloroprene (2-chloro-1,3-butadiene) (CD) is a monomer used almost exclusively for the production of synthetic rubber and latexes [1]. Epidemiologic studies of CD were stimulated by reports of angiosarcoma of the liver among vinyl chloride (VC) workers [2], a case report of a liver angiosarcoma among a worker exposed to CD but not to VC [3] and the structural similarity between CD and VC.

The earliest CD studies appeared in the Russian literature as case series studies of lung [4] and skin [5] cancers among workers with high exposure to CD. The first informative epidemiological study of CD exposed workers in the U.S. was conducted by Pell [6], who studied an historical cohort of DuPont Chemical Co. workers from two polychloroprene manufacturing plants, including the Louisville, KY plant in the current study. Pell found no consistent evidence of elevated mortality rates or cancer incidence rates among CD-exposed workers. Later cohort studies of CD production workers in China [7] and Armenia [8], and of shoe manufacturing workers in Russia [9] reported excesses in liver cancer among workers exposed to CD. Zaridze et al. [10] performed additional analyses of the Russian and Armenian cohorts that supported the liver cancer findings. The most recent cohort study of cancer incidence among chloroprene production workers in France found no excess in liver cancer, but limited evidence of a lung cancer excess associated with duration of employment [11].

Chloroprene was first evaluated by the International Agency for Research on Cancer (IARC) in 1978 as Group 3 (not classifiable as to its carcinogenicity to humans), and remained in Group 3 following the 1987 reevaluation [12,13]. On the basis of new bioassays that provided sufficient evidence of carcinogenicity in rats and mice [14,15], IARC reclassified chloroprene in 1999 from Group 3, to Group 2B (possibly carcinogenic to humans) [16]. The 1999 reevaluation considered only two epidemiology studies [6,9] whose evidence was deemed inadequate.

To provide more definitive epidemiological evidence regarding the long-term health effects of exposure to CD, a four-plant, multi-national epidemiologic study of workers with potential exposure to CD was commissioned in 1999 by the International Institute of Synthetic Rubber Producers (IISRP). The exposure assessment component of the study was conducted at the University of Oklahoma (UOk) and the University of Illinois at Chicago (UIC); the epidemiology and biostatistics component was conducted at the University of Pittsburgh (UPitt).

We report here the results of our analysis of general mortality patterns among the CD cohort. Detailed accounts of the historical exposure reconstruction and the results of our analyses of mortality in relation to CD exposure are presented elsewhere [17–21].

2. Methods

2.1. Study sites and subjects

The chloroprene (CD) cohort included all workers ($n = 12{,}430$) with potential CD exposure at any of four CD production sites from plant start-up date through the end of 2000 (1999 for one site). The sites include two DuPont/Dow Elastomers LLC (DDE) plants in the U.S. (Louisville, KY and Pontchartrain, LA), one DDE plant in Maydown, Northern Ireland (NI) and one Enichem Elastomers France plant in Grenoble, France (FR) (called here Plants L, P, M and G). CD production dates for each plant were: L (1942–1972), P (1969–date), M (1960–1998) and G (1966–date). In two Plants (L and M), CD production included an acetylene-based process that produced vinyl chloride (VC) as a by-product. Plant L made CD only through the acetylene process that was phased out between 1971 and 1976; Plant M made CD by the acetylene process from 1960 to 1980 then only by the butadiene process from 1980 to 1998. Plants P and G used only the butadiene process to produce CD. The newer butadiene process did not involve VC exposures and resulted in lower CD exposures for jobs related to monomer production than those associated with the early production years of the older Plants L and M. Details of the history, processes and chemical exposures associated with each study plant is described elsewhere [17–21].

With the exception of Plant G, the study population was enumerated from computerized employee databases

Table 1
Key features of cohort study design

Characteristic	Louisville, KY	Maydown, NI	Pontchartrain, LA	Grenoble, FR	All plants
Subjects	5507	4849	1357	717	12,430
Person-years	197,919	127,036	30,660	17,057	372,672
Earliest hire date	1942	1947	1962	1966	–
CD production dates	1942–1972[a]	1960–1998	1969–date	1966–date	–
CD production process	Acetylene	Butadiene and acetylene	Butadiene	Butadiene	–
Observation period	1949–2000[b]	1960–2000	1962–2000	1966–1999[c]	–
Maximum observation period through 2000	52 years	41 years	39 years	34 years	–

[a] Monomer production ended in 1972, CD currently in use at plant.
[b] Dates chosen to avoid fifth revision of International Classification of Diseases (ICD).
[c] Follow-up through 1999 only.

and by manual review of hard copy personnel records. We verified the completeness of the cohorts for all but Plant G by cross checking names among the various data sources, including the corporate mortality registry and earlier cohort study files of Plant L and Plant P held by the DuPont Chemical Company. For Plant P, we identified but could not locate, the records of 191 employees who had transferred to other DDE sites; however, these were mostly salaried workers with little potential for CD exposure. Eighteen potential subjects from Plant M chose not to participate in the study. The Plant G cohort was enumerated and verified by French investigators as an expansion and update of their earlier cohort study of cancer incidence [11].

The total CD cohort includes 12,430 subjects who contributed 372,672 person-years of observation, with Plants L and M comprising the bulk of the subjects and person-years (Table 1). Plant L is the oldest and largest with CD production dates extending back to 1942. With the exception of Plant L, study periods roughly coincided with CD production dates and ranged in length from 34 to 52 years. The observation period for Plant L began in 1949 to avoid methodological problems associated with the earlier fifth revision of the International Classification of Diseases (ICD).[1] These problems include establishing comparability with later revisions and cohort selection factors associated with employment during World War II. Because the four study sites are highly diverse with respect to geographic location, cohort size, cohort entry period, CD exposure period and CD exposure levels [21], we approached all aspects of this investigation in a site-specific manner, combining activities or data across two or more sites only if warranted by evidence of sufficient homogeneity.

Table 2 shows that the CD cohort predominantly comprised white males employed in blue collar (wage earning) positions who terminated employment before the end of the study period. The pay type (blue, white collar) variable was constructed by two of the authors (NE and TH) from detailed work history data for use in our exposure–response analysis for respiratory system cancer as a rough surrogate of education/socioeconomic status [21]. A substantial number of subjects in each plant worked 20 or more years or were followed for mortality 30 or more years. Plants L and M included the largest percentages of short-term workers (less than 5 years). In all plants, the majority of subjects were hired between ages 20 and 29. More than 92% of the workers at each plant were exposed to CD, with 99% of the Louisville workers exposed and all Grenoble workers exposed. Exposure to VC occurred only in Plants L and M with 22.7% and 5.5% of subjects exposed, respectively. By nature of the production process involved, all workers exposed to VC were also exposed to CD.

2.2. *Vital status and cause of death ascertainment*

Study members for U.S. plants with unconfirmed vital status (not known from company-held records to be alive or dead as of the study end date) were entered into the standard UPitt vital status tracing protocol developed by Schall et al. [22,23]. This included a combination of federal and state government sources (e.g., Pension Benefit Information (PBI), the National Death Index (NDI), Social Security Administration (SSA)). A limitation found with this protocol in fall 2004 [24] revealed that relying upon PBI as the first stage of the tracing protocol may not identify all deaths. Due to time limitations, the revised two-stage protocol proposed by Buchanich et al. [24] was not used; instead all cohort members identified

[1] Truncating the Plant L cohort at 1949 resulted in the loss of only three subjects. Two of these had died before 1949 (one from cancer of the intestines (ICD5 = 046e) and one from an automobile accident (ICD5 = 170c)) and one subject was lost to follow-up. Thus, this truncation had negligible effect on our mortality analysis.

Table 2
Distribution of CD cohort by selected study factors

Characteristic	Louisville, KY		Maydown, NI		Pontchartrain, LA		Grenoble, FR		All plants	
	Number	%	Number	%	Number	%	Number	%	Number	%
Subjects	5507	44.3	4849	39.0	1357	10.9	717	5.8	12,430	100.0
Race										
White	3425	62.1	4849	100.0	698	51.4	717	100	9689	77.9
Non-white	568	10.3	0	0	175	12.9	0	0	743	6.0
Unknown	1514	27.6	0	0	484	35.7	0	0	1998	16.1
Sex										
Male	4895	88.9	4359	89.9	1108	81.6	646	90.1	11,008	88.6
Female	612	11.1	490	10.1	249	18.4	71	9.9	1422	11.4
Worker pay type[a]										
Blue collar	5317	96.6	4503	92.8	947	69.8	518	72.2	11,285	90.8
White collar	190	3.4	346	7.2	410	30.2	199	27.8	1145	9.2
Worker service type										
Short-term (<5 years)	2615	47.5	2713	56.0	426	31.4	150	20.9	5904	47.5
Long-term (5+ years)	2892	52.5	2136	44.1	931	68.6	567	79.1	6526	52.5
Vital status (as of 31 December 2000)										
Alive	3095	56.2	4414	91.0	1255	92.5	630	87.9	9394	75.6
Assumed	(2715)	(87.7)	(4089)	(92.6)	(837)	(66.7)	(374)	(59.4)	(8015)	(85.3)
Confirmed	(380)	(12.3)	(325)	(7.4)	(418)	(33.3)	(256)	(40.6)	(1379)	(14.7)
Dead	2403	43.6	435	9.0	102	7.5	62	8.7	3002	24.2
Cause of death known	(2282)	(95.0)	(412)	(94.7)	(100)	(98.0)	(56)	(90.3)	(2850)	(94.9)
Cause of death unknown	(121)	(5.0)	(23)	(5.3)	(2)	(2.0)	(6)	(9.7)	(152)	(5.1)
Untraceable	9	0.2	0[b]		0		25	3.5	34	0.3
Working status (31 December 2000)										
Active	380	6.9	325	6.7	418	30.8	256	35.7	1379	11.1
Separated	5127	93.1	4501	92.8	912	67.2	461	64.3	11,001	88.5
Died while employed	0	0	23	0.5	27	2.0	0	0	50	0.4
Age at hire										
<20	339	6.2	1172	24.2	112	8.3	36	5.0	1659	13.3
20–29	3280	59.6	2515	51.9	839	61.8	369	51.5	7003	56.3
30+	1888	34.3	1162	24.0	406	29.9	312	43.5	3768	30.3
Duration of employment (years)										
<5	2615	47.5	2713	56.0	426	31.4	150	20.9	5904	47.5
5–19	1100	20.0	1276	26.3	459	33.8	307	42.8	3142	25.3
20+	1792	32.5	860	17.7	472	34.8	260	36.3	3384	27.2
Time since first employment (years)										
<20	497	9.0	1107	22.8	575	42.4	234	32.6	2413	19.4
20–29	1213	22.0	1709	35.2	298	30.0	245	34.2	3465	27.9
30+	3797	69.0	2033	41.9	484	35.7	238	33.2	6552	52.7
CD exposure status										
Unexposed	37	0.7	375	7.7	99	7.3	0	0	511	4.1
Exposed	5470	99.3	4474	92.3	1258	92.7	717	100.0	11,919	95.9
VC exposure status										
Unexposed	4257	77.3	4584	94.5	n/a		n/a		8841	85.4
Exposed	1250	22.7	265	5.5					1515	14.6

[a] Pay type = blue collar if blue collar duration of employment > white collar duration of employment, else pay type = white collar.
[b] An estimated 5% of the NI cohort was lost-to-follow-up and presumed alive for the statistical analysis.

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as presumed alive using the Schall et al. [22,23] methodology were sent to the NDI. This revised methodology ensured that we did not miss deaths for study members who had been presumed alive because NDI has independent agreements with each state to receive all deaths and is not subject to the restrictions identified by Buchanich et al. [24] from relying on information from PBI.

Cause of death acquisition proceeded as described by Schall et al. [22,23]. NDI-Plus was utilized to obtain the coded cause of death for all persons identified as deceased from 1 January 1979 through 31 December 2000. For all study members identified as deceased prior to 1979, a copy of the death certificate was requested from the state health department where the death occurred. We also obtained some coded causes of death for deaths prior to 1979 from the Dupont employee registry. All death certificates were coded to the underlying cause of death by a U.S. National Center for Health Statistics nosologist using the International Classification of Diseases (ICD) rules in effect at the time of death.

Subjects in the Plant M cohort whose vital status was unknown from company-held records were traced for deaths via computerized and manual searches of files available at the General Registry Office (GRO) in Belfast, NI. This activity was performed by GRO staff under the direction of UPitt researchers and a DuPont Chemical Co. consultant based in England. Because GRO did not have access to the mortality registers for the Republic of Ireland, some relatively small percentage of deaths (estimated to be about 5%) that occurred in that area may have been missed. These subjects were assumed alive for purposes of the mortality analysis. For subjects in the Plant G cohort, vital status and cause of death was determined through 1999 (1 year earlier than the remaining sites) by the French investigators who conducted the earlier cancer incidence study of this site [11] and provided the cohort file to UPitt. As for Plant M, a small percentage of deaths in the Plant G cohort may have been missed among subjects who emigrated from France.

Table 2 shows that 3002 deaths were identified among the total CD cohort and underlying cause of death was determined for 2850 or 95%. Cause of death ascertainment rates ranged from 90.3% for Plant G to 98% for Plant P. Lost-to-follow-up rates were 0% for Plant P, 0.2% for Plant L and 3.5% for Plant G.

2.3. Statistical analysis

We examined the total and cause-specific mortality experience of subjects from each CD plant during their respective study period (see Table 1). Cohort analyses were performed using a modified life table procedure from the Occupational Cohort Mortality Program (OCMAP) [25]. Person-years at risk contributed by each subject were jointly classified by race, sex, age group, calendar time, duration of employment (DOE) and the time since first employment (TSFE). Person-year counts began at the beginning of the study period or date of hire (whichever occurred later) and continued until date of death or the end of the study period. For workers lost-to-follow-up, person-year counts stopped at the last date of known vital status, which was employment termination date. Person-years for subjects of unknown race were assigned to white or non-white categories in proportion to the person-year distribution of study members with known race. This same approach was applied separately to assign race to observed deaths of unknown race.

We computed expected numbers of deaths by multiplying average annual race, sex, age and time-specific standard population death rates by the person-years at risk in the corresponding race–sex–age–time intervals. For Plants L and P, expected deaths were computed using as standard populations the total U.S. and the local plant areas (aggregates of counties or parishes) from which the plant workforces were largely drawn (for Plant L: Jefferson and Bullitt KY, Clark, Floyd and Harrison IN; for Plant P: E. Baton Rouge, Jefferson, Ascension, St. Charles, St. James, Tangipahoa and St. John LA). Population-weighted county rates were obtained from the Mortality and Population Data System (MPDS) maintained by UPitt [26]. Due to MPDS data limitations, expected numbers of non-cancer deaths for Plant L were limited to 1960–1994 (with 1962–1964 rates applied to 1960–1964 person-years). Because local death rates usually provide the most valid external mortality comparisons (as they help to adjust for the social, cultural and economic factors related to disease) our analysis of general mortality patterns for the U.S. plants focused primarily on the local county comparisons. Moreover, because the counties or parishes involved represent large population areas, the local rates are measured with good precision. For Plants M and G, we used only the respective national death rates to compute expected deaths.

For each study plant, standardized mortality ratios (SMRs) and their 95% confidence intervals (CI) were computed for all subjects and for selected subgroups. A limited number of SMRs were computed for all study plants combined by forming the ratio of the sum of the plant-specific observed to expected numbers of deaths taken from the plant-specific total study periods. Statistically significant deviations of the SMRs below and above 1.00 were identified using Poisson probabilities [27]. All tests were done at the .05 significance level

Table 3
Observed (Obs) deaths and SMRs for selected causes of death (total Louisville cohort, U.S. and local county comparisons, 1949–2000[a])

Cause of death (ninth revision ICD codes)	Obs	U.S.		Local county	
		SMR	95% CI	()[b] SMR	95% CI
All causes of death (001–999)	2403	0.82**	0.79–0.86	(2357) 0.74**	0.71–0.77
All cancer (140–208)	652	0.91*	0.84–0.98	0.75**	0.69–0.80
Buccal cavity and pharynx (140–149)	13	0.76	0.41–1.31	0.51**	0.27–0.86
Digestive organs and peritoneum (150–159)	168	0.94	0.80–1.09	0.83*	0.71–0.96
Esophagus (150)	20	0.99	0.60–1.53	0.71	0.44–1.10
Stomach (151)	24	0.92	0.59–1.37	1.10	0.70–1.64
Large intestine (153)	70	1.14	0.89–1.44	0.94	0.73–1.19
Rectum (154)	12	0.87	0.45–1.52	0.80	0.41–1.40
Biliary passages and liver primary (155, 156)	17	1.04	0.60–1.66	0.90	0.52–1.44
Pancreas (157)	22	0.62*	0.39–0.94	0.57**	0.36–0.86
All other digestive (152, 158, 159)	3	0.55	0.11–1.61	0.48	0.10–1.40
Respiratory system (160–165)	266	1.06	0.94–1.19	0.75**	0.66–0.85
Larynx (161)	10	1.13	0.54–2.08	0.75	0.36–1.39
Bronchus, trachea, lung (162)	252	1.05	0.92–1.19	0.75**	0.66–0.85
All other respiratory (160, 163, 164, 165)	4	1.66	0.45–4.25	1.29	0.35–3.30
Breast (174, 175)	10	0.97	0.47–1.79	0.91	0.44–1.67
All uterine (females only) (179, 180, 181, 182)	2	0.71	0.09–2.57	0.61	0.07–2.22
Prostate (males only) (185)	47	0.72*	0.53–0.95	0.68**	0.50–0.91
Kidney (189.0, 189.1, 189.2)	15	0.92	0.52–1.52	0.83	0.46–1.37
Bladder and other urinary organs (188, 189.3, 189.4, 189.8, 189.9)	14	0.77	0.42–1.30	0.69	0.38–1.16
Malignant melanoma of skin (172)	5	0.55	0.18–1.29	0.58	0.19–1.36
Central nervous system (191, 192)	13	0.77	0.41–1.32	0.69	0.37–1.18
Lymphatic–hematopoietic tissue (200–208)	63	0.96	0.74–1.23	0.88	0.68–1.13
Hodgkin's disease (201)	4	0.99	0.27–2.54	0.86	0.23–2.19
Non-Hodgkin's lymphoma (200, 202.0, 202.1, 202.8, 202.9)	23	0.97	0.62–1.46	0.92	0.58–1.37
Leukemia and aleukemia (204–208)	26	1.03	0.68–1.52	0.93	0.60–1.36
All other lymphopoietic tissue (202.2, 202.3, 202.4, 202.5, 202.6, 203)	10	0.79	0.38–1.45	0.74	0.36–1.37
All other malignant neoplasms (171, 173, 195–199)	34	0.62**	0.43–0.87	0.56**	0.39–0.78
Diabetes (250)	47	0.84	0.62–1.12	(47) 0.72*	0.53–0.96
Cerebrovascular disease (430–438)	139	0.79**	0.67–0.94	(138) 0.71**	0.60–0.84
All heart disease (390–398, 402, 404, 410–429)	825	0.77**	0.72–0.83	(817) 0.71**	0.66–0.76
Non-malignant respiratory disease (460–519)	158	0.67**	0.57–0.79	(158) 0.56**	0.47–0.65
Ulcer of stomach and duodenum (531–533)	8	0.68	0.29–1.34	(6) 0.63	0.23–1.38
Cirrhosis of liver (571)	32	0.53**	0.37–0.75	(32) 0.51**	0.35–0.72
Nephritis and nephrosis (580–589)	32	1.11	0.76–1.57	(30) 0.90	0.61–1.29
All external causes of death (E800–999)	130	0.61**	0.51–0.72	(118) 0.63**	0.52–0.75
Accidents (E800–949)	80	0.58**	0.46–0.72	(74) 0.68**	0.53–0.85
Suicides (E950–959)	33	0.72	0.49–1.00	(31) 0.66*	0.45–0.93
Homicides and other external (E960–978, E980–999)	17	0.57*	0.33–0.91	(13) 0.41**	0.22–0.70
Unknown causes	121			(116) 121	

[a] Observation period is 1960–2000 for all causes combined and non-malignant causes of death based on local comparisons.
[b] Observed number of deaths during 1960–2000 study period.
* $p < .05$.
** $p < .01$.

and no adjustment was made for multiple comparisons. The *a priori* statistical power[2] of our study to detect a 2.0-fold or greater excess in lung cancer was 0.87 and 0.97 for Plants G and P, respectively, and essentially 1.00 for Plants L and M and the combined cohort. For liver cancer, the corresponding statistical power was less than 0.25 for Plants G and P, 0.41 for Plant M, 0.97 for Plant L and 0.99 for the combined cohort.

3. Results

Tables 3–6 show for Plants L, P, M and G, respectively, observed deaths and SMRs for the corresponding

[2] The *a priori* statistical power is the probability of obtaining an SMR statistically significantly greater than 1.00 at the 0.05 level (one-sided) assuming no excess risk and estimated numbers of expected deaths.

Table 4
Observed (Obs) deaths and SMRs for selected causes of death (total Pontchartrain cohort, U.S. and local county comparisons, 1962–2000)

Cause of death (ninth revision ICD codes)	Obs	U.S.		Local county	
		SMR	95% CI	SMR	95% CI
All causes of death (001–999)	102	0.57**	0.46–0.69	0.53**	0.43–0.65
All cancer (140–208)	34	0.74	0.51–1.04	0.68*	0.47–0.95
Digestive organs and peritoneum (150–159)	7	0.66	0.26–1.35	0.63	0.25–1.29
Large intestine (153)	3	0.84	0.17–2.46	0.78	0.16–2.27
Rectum (154)	2	2.62	0.32–9.47	3.06	0.37–11.04
Biliary passages and liver primary (155, 156)	0	–	0–3.11	–	0–2.39
Respiratory system (160–165)	12	0.72	0.37–1.26	0.62	0.32–1.09
Larynx (161)	1	1.81	0.05–10.11	1.46	0.04–8.12
Bronchus, trachea, lung (162)	10	0.63	0.30–1.16	0.55	0.26–1.00
All other respiratory (160, 163, 164, 165)	1	6.00	0.15–33.42	4.25	0.11–23.68
Malignant melanoma of skin (172)	2	1.97	0.24–7.10	2.03	0.25–7.34
Central nervous system (191, 192)	3	1.88	0.39–5.50	1.95	0.40–5.70
Lymphatic–hematopoietic tissue (200–208)	5	1.05	0.34–2.45	1.03	0.33–2.40
Non-Hodgkin's lymphoma (200, 202.0, 202.1, 202.8, 202.9)	2	1.05	0.13–3.78	0.99	0.12–3.57
Leukemia and aleukemia (204–208)	2	1.13	0.14–4.07	1.11	0.13–4.01
All other malignant neoplasms (171, 173, 195–199)	2	0.52	0.06–1.89	0.44	0.05–1.58
Cerebrovascular disease (430–438)	2	0.30	0.04–1.06	0.28	0.03–1.01
All heart disease (390–398, 402, 404, 410–429)	26	0.49**	0.32–0.72	0.44**	0.29–0.64
Non-malignant respiratory disease (460–519)	3	0.28*	0.06–0.80	0.33*	0.07–0.96
All external causes of death (E800–999)	18	0.65	0.38–1.02	0.59*	0.35–0.93
Accidents (E800–949)	14	0.89	0.48–1.49	0.82	0.45–1.37
Suicides (E950–959)	2	0.31	0.04–1.12	0.28	0.03–1.01
Homicides and other external (E960–978, E980–999)	2	0.36	0.04–1.30	0.31	0.04–1.12
Unknown causes (in all causes category only)	2				

* $p < .05$.
** $p < .01$.

total study period. Shown in each table are all cause of death categories from our MPDS listing [26] that included at least two observed deaths (or at least one death for liver cancer). For Plant L (Table 3), the local county comparisons revealed statistically significant deficits in deaths for all causes of death combined (SMR = 0.74, 95% CI = 0.71–0.77) and all cancers combined (SMR = 0.75, 95% CI = 0.69–0.80). Deficits in deaths were also observed for nearly all the malignant and non-malignant cause of death categories examined, and many were statistically significant. We observed a statistically significant 25% deficit in respiratory system cancer (RSC) based on 266 deaths (SMR = 0.75, 95% CI = 0.66–0.85). Of these, 252 or 95% were due to cancer of the bronchus, trachea or lung, which yielded a similar deficit (SMR = 0.75, 95% CI = 0.66–0.85). For the other cancer site of *a priori* interest in this study, liver cancer (categorized as cancer of the biliary passages and liver), we observed a 10% local county rate-based deficit in mortality based on 17 deaths (SMR = 0.90, 95% CI = 0.52–1.44). Based on their ICD codes, the 17 liver cancer deaths included seven "liver primary" (ICD9 = 155.0), four "extrahepatic bile ducts" (ICD9 = 156.1), three "gall bladder" (ICD9 = 156.0), one "intrahepatic bile ducts" (ICD9 = 155.1), one "liver cell carcinoma" (ICD10 = C22.0), and one "biliary tract, unspecified" (ICD10 = C24.9). With only a few exceptions, the corresponding SMRs based on U.S. rates are higher, reflecting the generally higher total and cause-specific rates of the Louisville, KY regional area. This disparity for many of the chronic disease categories is at least partly due to the higher prevalence of cigarette smoking associated with the state of Kentucky and presumably the Louisville regional area. In fact, Kentucky had the highest prevalence of cigarette smoking of any state in 1997 [28,29].

For Plant P (Table 4), the local county comparisons revealed a statistically significant 47% deficit in deaths for all causes of death combined (SMR = 0.53, 95% CI = 0.43–0.65) and a statistically significant 32% deficit for all cancers combined (SMR = 0.68, 95% CI = 0.47–0.95). We observed elevated SMRs for several of the cancer site categories examined, however, most were based on small numbers of observed deaths and none was statistically significant. SMRs for all non-malignant cause of death categories exam-

Table 5
Observed (Obs) deaths and SMRs for selected causes of death (total Maydown study cohort, Northern Ireland comparison, 1960–2000)

Cause of death (ninth revision ICD codes)	Obs	SMR	95% CI
All causes of death (001–999)	435	0.60**	0.55–0.67
All cancer (140–208)	128	0.68**	0.56–0.80
Digestive organs and peritoneum (150–159)	39	0.65**	0.46–0.89
Esophagus (150)	2	0.23*	0.03–0.84
Stomach (151)	17	1.23	0.72–1.98
Large intestine (153)	7	0.45*	0.18–0.93
Rectum (154)	7	1.07	0.43–2.21
Biliary passages and liver (155, 156)	1	0.24	0.01–1.34
Pancreas (157)	4	0.49	0.13–1.26
Respiratory system (160–165)	48	0.79	0.58–1.05
Bronchus, trachea, lung (162)	43	0.78	0.56–1.05
Prostate (males only) (185)	8	0.84	0.36–1.65
Central nervous system (191, 192)	6	0.84	0.31–1.82
Bone (170)	2	2.69	0.33–9.73
Lymphatic–hematopoietic tissue (200–208)	15	0.90	0.51–1.49
Hodgkin's disease (201)	2	0.31	0.04–1.12
Leukemia and aleukemia (204–208)	3	0.55	0.11–1.62
Benign neoplasms (210–229)	3	0.75	0.16–2.20
Diabetes mellitus (250)	2	0.60	0.07–2.18
Cerebrovascular disease (430–438)	31	0.69*	0.47–0.98
All heart disease (390–398, 402, 404, 410–429)	151	0.60**	0.51–0.70
Non-malignant respiratory disease (460–519)	22	0.34**	0.21–0.51
Cirrhosis of liver (571)	4	0.55	0.15–1.42
Nephritis and nephrosis (580–589)	5	1.16	0.38–2.70
All external causes of death (E800–999)	32	0.38**	0.26–0.54
Accidents (E800–949)	32	0.61**	0.42–0.86
Unknown causes (in all causes category only)	23		

* $p < .05$.
** $p < .01$.

ined were less than 1.00 and some deficits were statistically significant. We observed a 38% deficit in respiratory system cancer (RSC) based on 12 deaths (SMR = 0.62, 95% CI = 0.32–1.09). Of these, 10 or 83% were due to cancer of the bronchus, trachea or lung, which yielded an even larger deficit (SMR = 0.55, 95% CI = 0.26–1.00). No deaths from liver cancer were observed at Plant P. SMRs based on U.S. rates were gen-

Table 6
Observed (Obs) deaths and SMRs for selected causes of death (total Maydown study cohort, Northern Ireland comparison, 1966–1999)

Cause of death (ninth revision ICD codes)	Obs	SMR	95% CI
All causes of death (001–999)	62	0.65**	0.50–0.83
All cancer (140–208)	20	0.59*	0.36–0.91
Buccal cavity and pharynx (140–149)	2	0.65	0.08–2.34
Digestive organs and peritoneum (150–159)	4	0.43	0.12–1.09
Large intestine (153)	2	1.19	0.14–4.28
Biliary passages and liver primary (155, 156)	1	0.56	0.01–3.12
Respiratory system (160–165)	10	0.85	0.41–1.56
Larynx (161)	3	1.88	0.39–5.49
Bronchus, trachea, lung (162)	4	0.47	0.13–1.20
All other respiratory (160, 163, 164, 165)	3	2.55	0.53–7.46
All heart disease (390–398, 402, 404, 410–429)	14	1.06	0.58–1.78
All external causes of death (E800–999)	12	0.72	0.37–1.25
Unknown causes (in all causes category only)	6		

* $p < .05$.
** $p < .01$.

Table 7
Observed (Obs) deaths and SMRs for all cancers combined by selected study factors and plant, local county comparisons (KY and LA), national comparisons (NI and FR)

Study factor	Louisville, KY (1949–2000)		Maydown, NI (1960–2000)		Pontchartrain, LA (1962–2000)		Grenoble, FR (1966–1999)		All plants	
	Obs	SMR (95% CI)	Obs	SMR (95% CI)	Obs	SMR (95% CI)	Obs	SMR (95% CI)	Obs	SMR (95% CI)
All workers	652	0.75** (0.69–0.80)	128	0.68** (0.56–0.80)	34	0.68* (0.47–0.95)	20	0.59* (0.36–0.91)	834	0.73** (0.68–0.78)
Race										
White	561	0.77** (0.71–0.84)	128	0.68** (0.56–0.80)	30	0.66* (0.44–0.94)	20	0.59* (0.36–0.91)	739	0.74** (0.69–0.80)
Non-white	91	0.62** (0.50–0.75)	–	–	4	0.91 (0.25–2.32)	–	–	95	0.62** (0.51–0.76)
Sex										
Male	616	0.75** (0.69–0.81)	126	0.71** (0.59–0.85)	32	0.69* (0.47–0.97)	19	0.59* (0.35–0.92)	793	0.74** (0.69–0.79)
Female	36	0.67* (0.47–0.93)	2	0.16** (0.02–0.59)	2	0.60 (0.07–2.17)	1	0.70 (0.02–3.92)	41	0.58** (0.41–0.78)
Worker pay type										
Blue collar	636	0.75** (0.69–0.81)	123	0.70** (0.49–0.95)	20	0.59* (0.36–0.91)	16	0.67 (0.38–1.09)	795	0.74** (0.68–0.79)
White collar	16	0.67 (0.38–1.09)	5	0.28** (0.09–0.66)	14	0.84 (0.46–1.42)	4	0.40 (0.11–1.03)	39	0.57** (0.41–0.78)
Worker service type										
Short-term (<5 years)	281	0.74** (0.66–0.83)	39	0.47** (0.34–0.65)	3	0.53 (0.11–1.55)	5	0.89 (0.29–2.07)	328	0.69** (0.62–0.77)
Long-term (5+ years)	371	0.75** (0.67–0.83)	89	0.80* (0.64–0.98)	31	0.70* (0.48–0.99)	15	0.53* (0.30–0.88)	506	0.75** (0.68–0.81)
Duration of employment										
<5	281	0.73** (0.65–0.82)	39	0.45** (0.32–0.62)	3	0.42 (0.09–1.23)	5	0.71 (0.23–1.65)	328	0.68** (0.60–0.75)
5–19	107	0.63** (0.51–0.76)	51	0.72* (0.53–0.94)	22	0.86 (0.54–1.31)	9	0.46* (0.21–0.88)	189	0.66** (0.57–0.76)
20+	264	0.82** (0.72–0.93)	38	1.02 (0.72–1.40)	9	0.44** (0.20–0.84)	6	0.83 (0.31–1.82)	317	0.82* (0.73–0.91)
Time since first employment										
<20	51	0.52** (0.39–0.68)	30	0.53** (0.36–0.76)	16	0.93 (0.53–1.51)	9	0.61** (0.42–0.86)	106	0.57** (0.47–0.69)
20–29	118	0.72** (0.59–0.86)	58	0.77* (0.58–0.99)	11	0.56 (0.28–1.01)	8	0.57 (0.24–1.12)	195	0.71** (0.62–0.82)
30+	483	0.79** (0.72–0.86)	40	0.64** (0.45–0.87)	7	0.53 (0.21–1.09)	3	0.83 (0.17–2.43)	533	0.77** (0.71–0.84)
CD exposure status										
Unexposed	1	0.99 (0.03–5.51)	14	1.26 (0.69–2.12)	8	1.44 (0.62–2.85)	5	0.61 (0.20–1.42)	28	1.08 (0.72–1.56)
Exposed	651	0.74** (0.69–0.80)	114	0.62** (0.51–0.75)	26	0.57** (0.37–0.84)	15	0.59* (0.33–0.97)	806	0.71** (0.66–0.76)
VC exposure status										
Unexposed	524	0.80** (0.73–0.87)	113	0.64** (0.53–0.77)	34	0.68* (0.47–0.95)	20	0.59 (0.36–0.91)	691	0.75** (0.70–0.81)
Exposed	128	0.58** (0.49–0.69)	15	0.80 (0.44–1.31)	–	–	–	–	143	0.60* (0.50–0.70)

* $p < .05$.
** $p < .01$.

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Table 8
Observed (Obs) deaths and SMRs for respiratory system cancer by selected study factors and plant, local county comparisons (KY and LA), national comparisons (NI and FR)

Study factor	Louisville, KY (1949–2000)		Maydown, NI (1960–2000)		Pontchartrain, LA (1962–2000)		Grenoble, FR (1966–1999)		All plants	
	Obs	SMR (95% CI)	Obs	SMR (95% CI)	Obs	SMR (95% CI)	Obs	SMR (95% CI)	Obs	SMR (95% CI)
All workers	266	0.75** (0.66–0.85)	48	0.79 (0.58–1.05)	12	0.62 (0.32–1.09)	10	0.85 (0.41–1.56)	336	0.75** (0.67–0.84)
Race										
White	233	0.78** (0.69–0.89)	48	0.79 (0.58–1.05)	10	0.55* (0.23–0.96)	10	0.85 (0.41–1.56)	301	0.77** (0.69–0.87)
Non-white	33	0.59** (0.40–0.83)	–	–	2	1.56 (0.17–4.91)	–	–	35	0.61** (0.42–0.85)
Sex										
Male	256	0.75** (0.66–0.85)	48	0.82 (0.60–1.08)	11	0.59 (0.30–1.06)	10	0.86 (0.41–1.58)	325	0.76** (0.68–0.84)
Female	10	0.72 (0.34–1.31)	0	– (0–2.01)	1	1.38 (0.04–7.71)	0	– (0–30.70)	11	0.66 (0.33–1.18)
Worker pay type										
Blue collar	262	0.76** (0.67–0.86)	46	0.81 (0.60–1.08)	8	0.62 (0.27–1.21)	9	1.09 (0.50–2.06)	325	0.77** (0.69–0.86)
White collar	4	0.41 (0.11–1.04)	2	0.36 (0.04–1.29)	4	0.63 (0.17–1.61)	1	0.29 (0.01–1.59)	11	0.44** (0.22–0.78)
Worker service type										
Short-term (<5 years)	123	0.80* (0.66–0.95)	14	0.57* (0.30–0.93)	0	– (0–2.08)	2	1.04 (0.13–3.77)	139	0.76* (0.64–0.90)
Long-term (5+ years)	143	0.72** (0.60–0.84)	34	0.92 (0.64–1.28)	12	0.69 (0.36–1.20)	8	0.81 (0.35–1.60)	197	0.75** (0.65–0.86)
Duration of employment (years)										
<5	123	0.79** (0.66–0.95)	14	0.54* (0.29–0.90)	0	– (0–1.70)	2	0.86 (0.10–3.12)	139	0.75** (0.63–0.88)
5–19	37	0.58** (0.41–0.79)	24	1.03 (0.66–1.53)	8	0.81 (0.35–1.59)	6	0.90 (0.33–1.96)	75	0.72* (0.57–0.91)
20+	106	0.79** (0.64–0.95)	10	0.78 (0.37–1.43)	4	0.48 (0.13–1.22)	2	0.71 (0.09–2.58)	122	0.77* (0.64–0.92)
Time since first employment (years)										
<20	15	0.46** (0.26–0.76)	14	0.83 (0.45–1.39)	4	0.68 (0.18–1.73)	4	0.74 (0.20–1.89)	37	0.61** (0.43–0.84)
20–29	50	0.72* (0.53–0.95)	19	0.77 (0.46–1.20)	5	0.63 (0.20–1.47)	6	1.17 (0.43–2.55)	80	0.75* (0.59–0.93)
30+	201	0.80** (0.69–0.92)	15	0.73 (0.41–1.21)	3	0.56 (0.12–1.65)	0	– (0–2.95)	219	0.79* (0.69–0.90)
CD exposure status										
Unexposed	0	– (0–8.99)	4	1.15 (0.31–2.93)	0	– (0–1.88)	2	0.79 (0.10–2.84)	6	0.71 (0.26–1.55)
Exposed	266	0.75** (0.66–0.85)	44	0.75 (0.54–1.01)	12	0.68 (0.35–1.18)	8	0.87 (0.37–1.70)	330	0.75** (0.67–0.84)
VC exposure status										
Unexposed	232	0.89 (0.78–1.02)	43	0.77 (0.56–1.04)	12	0.62 (0.32–1.09)	10	0.85 (0.41–1.56)	297	0.85* (0.76–0.96)
Exposed	34	0.36** (0.25–0.50)	5	0.78 (0.25–1.82)	–	–	–	–	39	0.39** (0.27–0.53)

* $p < .05$.
** $p < .01$.

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erally somewhat higher than those based on the local parishes.

For Plant M (Table 5), the Northern Ireland national comparisons revealed statistically significant deficits in deaths for all causes of death combined (SMR = 0.60, 95% CI = 0.55–0.67) and all cancers combined (SMR = 0.68, 95% CI = 0.56–0.80). Deficits in deaths were also observed for nearly all the malignant and non-malignant cause of death categories examined, and many were statistically significant. We observed a not statistically significant 21% deficit in respiratory system cancer (RSC) based on 48 deaths (SMR = 0.79, 95% CI = 0.58–1.05). Of these, 43 or 90% were due to cancer of the bronchus, trachea or lung, which yielded a similar deficit (SMR = 0.78, 95% CI = 0.56–1.05). One death from liver cancer was observed in Plant M (SMR not calculated) and was coded as “liver cancer-unspecified” (ICD10 = C22.9).

For Plant G (Table 6), the French national comparisons revealed statistically significant deficits in deaths for all causes of death combined (SMR = 0.65, 95% CI = 0.50–0.83) and all cancers combined (SMR = 0.59, 95% CI = 0.36–0.91). We observed elevated SMRs for some of the cancer sites and non-malignant disease categories examined, however, most were based on small numbers of observed deaths and none was statistically significant. We observed a 15% deficit in respiratory system cancer (RSC) based on 10 deaths (SMR = 0.85, 95% CI = 0.41–1.56). Of these, only 4 or 40% were due to cancer of the bronchus, trachea or lung, which yielded a much larger deficit (SMR = 0.47, 95% CI = 0.13–1.20). One death from liver cancer was observed in Plant G (SMR = 0.56, 95% CI = 0.01–3.12), and was coded as “liver, not specified as primary or secondary” (ICD9 = 155.2).

Table 9
Observed (Obs) deaths and SMRs for liver cancer by selected study factors, Louisville Plant, local county comparisons

Study factor	Louisville, KY (1949–2000)		All plants combined[a]	
	Obs	SMR (95% CI)	Obs	SMR (95% CI)
All workers	17	0.90 (0.53–1.44)	19	0.72 (0.43–1.13)
Race				
White	16	1.02 (0.58–1.65)	18	0.78 (0.46–1.23)
Non-white	1	0.32 (0.01–1.77)	1	0.30 (0.004–1.67)
Sex				
Male	16	0.89 (0.51–1.45)	18	0.72 (0.43–1.13)
Female	1	1.06 (0.03–5.93)	1	0.87 (0.01–4.87)
Worker pay type				
Blue collar	17	0.93 (0.54–1.49)	18	0.73 (0.43–1.16)
White collar	0	– (0–6.91)	1	0.66 (0.009–3.67)
Worker service type				
Short-term (<5 years)	4	0.49 (0.13–1.26)	4	1.54 (0.41–3.94)
Long-term (5+ years)	13	1.21 (0.64–2.07)	15	0.88 (0.49–1.45)
Duration of employment (years)				
<5	4	0.49 (0.13–1.25)	4	0.41 (0.11–1.06)
5–19	6	1.68 (0.62–3.66)	7	1.02 (0.41–2.09)
20+	7	0.98 (0.40–2.03)	8	0.97 (0.42–1.91)
Time since first employment (years)				
<20	1	0.56 (0.01–3.11)	1	0.29 (0.004–1.60)
20–29	3	0.91 (0.19–2.66)	4	0.71 (0.19–1.81)
30+	13	0.95 (0.50–1.62)	14	0.88 (0.48–1.47)
CD exposure status				
Unexposed	0	– (0–134.59)	2	2.56 (0.29–9.25)
Exposed	17	0.90 (0.53–1.44)	17	0.71 (0.42–1.14)
VC exposure status				
Unexposed	15	1.07 (0.60–1.77)	17	0.80 (0.47–1.29)
Exposed	2	0.44 (0.05–1.49)	2	0.40 (0.05–1.46)

[a] Includes observed and expected deaths from all four study plants.

Tables 7–9 show for all cancers combined, RSC and liver cancer, respectively, observed deaths and SMRs by selected study factors and plant, including the four plants combined. SMRs for Plants L and P are based on local county rates; those for Plants M and G on the respective national rates. For all cancers combined (Table 7), the aggregate SMR reflects a statistically significant 27% deficit in deaths based on 834 observed deaths (SMR = 0.73, 95% CI = 0.68–0.78) for the total CD cohort. For nearly all of the study variables and subcategories examined, including the variables that are surrogates of occupational exposure to CD or other substances (i.e., worker pay type, worker service type, duration of employment and the time since first employment), we observed deficits in deaths within and across the four plants and many are statistically significant. None of the few elevated SMRs in Table 7 was statistically significant. Because most of the cohort was exposed to CD, most of the cancer deaths occurred among CD-exposed persons (806/834), resulting in a statistically significant 29% deficit in all cancer mortality. Although plant-specific SMRs for CD-unexposed subjects are relatively imprecise due to the much smaller numbers of observed deaths, all cancer SMRs are higher within and across plants for CD-unexposed subjects compared with subjects who had some CD exposure. For Plants L and M where potential VC exposure occurred, we observed a combined statistically significant 40% deficit in all cancer deaths (SMR = 0.60, 95% CI = 0.50–0.70) based on 143 deaths. SMRs for workers both exposed and unexposed to VC were less than 1.00 in each plant.

For RSC (Table 8), the aggregate SMR reflects a statistically significant 25% deficit in deaths based on 336 observed deaths (SMR = 0.75, 95% CI = 0.67–0.84) for the total CD cohort. For nearly all of the study variables and subcategories examined, including the CD exposure variable and the variables that act as surrogates of exposure to CD or other substances, we observed deficits in deaths within and across the four plants and many are statistically significant. None of the few elevated SMRs in Table 8 was statistically significant. With the exception of a slight RSC excess among workers unexposed to CD in Plant M, SMRs for workers unexposed and exposed to CD or VC were less than 1.00.

Because 17 of the 19 total liver cancer deaths occurred in Plant L, the subgroup analysis was limited to Plant L and the combined four plants (Table 9). Based on the 19 deaths, we observed a 28% deficit in liver cancer deaths for the total CD cohort. All but one death occurred among white male, blue collar subjects. All of the 17 liver cancer deaths in Plant L occurred among subjects who had been exposed to CD, resulting in 10% deficit in deaths (SMR = 0.90, 95% CI = 0.53–1.44). For the combined plants, elevated SMRs were observed among short-term workers, workers employed 5–19 years, and among workers unexposed to CD; however, none was statistically significant.

4. Discussion and conclusions

Our historical cohort study of workers from four CD production sites in the U.S. and Europe represents the largest and the most comprehensive and rigorous investigation of the long-term health effects of exposure to CD conducted to date. It overcomes most of the shortcomings and uncertainties noted by Rice and Boffetta [30] and Acquavella and Leonard [31] that have limited the interpretation of findings from the five previous cohort studies, that is, the studies of chloroprene production workers in the U.S. [6], China [7], Armenia [8] and France [11] and the study of shoe manufacturing workers in Russia [9].

Our combined cohort of 12,430 subjects contributed over one-third of a million person-years of observation, of which 151,691 or 41% were among workers followed for 20 or more years from first employment. Through 2000 (1999 for Plant G), we observed 3002 deaths, including 834 from all cancers combined. For the two cause of death categories of *a priori* interest in this study (respiratory system cancer and liver cancer (categorized as cancer of the biliary passages and liver)), we observed 336 and 19 deaths, respectively. Other major strengths of the study include: diversity of site location and production processes; long observation periods; substantial proportion of workers employed 20 or more years; nearly complete cohort enumeration with cross-validation, vital status tracing and cause of death determination; excellent statistical power to detect two-fold or greater overall mortality excess for all cause of death categories of *a priori* interest; a rigorous and innovative, chemical process-based exposure reconstruction for chloroprene and vinyl chloride; and the use of national and local county mortality comparisons and robust statistical modeling of internal cohort rates.

During the course of the study, we attempted to locate, from records held by the two U.S. plants and Plant M, tobacco-smoking histories for all subjects who died from RSC and a series of control subjects to permit adjustment for potential confounding by smoking via a nested case-control study. Because we found that only 28% of the RSC cases from Plant L and 54% from Plant M had smoking history information, we decided that the case-control study of RSC was unfeasible. Two features of our cohort study, however, enabled at least some crude adjustment for potential confounding by smoking. First, in the two U.S. plants, our use of local county mortality comparisons afforded some adjustment for geographic variability in tobacco use. This was particularly evident in Plant L where SMRs for RSC and most other smoking-related chronic diseases based on local rates were considerably less than those based on U.S. rates. Second, in the exposure–response analyses for CD and VC described in our companion paper [21], we categorized workers by pay type (blue/white collar) and used this variable as a rough surrogate of education and socioeconomic status, which are highly correlated with smoking prevalence in both the U.S. and Europe.

While the *a priori* statistical power of our study to detect an overall two-fold or greater excess in liver cancer was 99%, the power was much lower in all plants but Plant L (which included 17 of the total 19 liver cancer deaths) and in other cohort subgroups examined. However, the issue of statistical power for liver cancer in this study was rendered mostly moot, as most of the SMRs were less than the null hypothesis value of 1.00 that was tested with a one-tailed test (i.e., with a one-tailed statistical test of the null hypothesis SMR = 1.00 versus the alternative hypothesis SMR > 1.00, power only applies to values observed under the alternative hypothesis).

In addition to CD and to VC in Plants L and M, subjects in our study plants were also potentially exposed to other agents, including 1,3-butadiene, 1,4-dichloro-2-butene, 3,4-dichloro-1-butene and methylene chloride. However, because exposures to these agents were brief, intermittent and process-specific, they would have had negligible or no impact on long-term worker health effects, thus, we made no attempt to characterize these or other co-exposures.

About one-half of the CD cohort were short-term workers (defined as working less than 5 years) although 27% of subjects worked 20 or more years. Contrary to many other occupational cohort studies, short-term workers did not exhibit a differential mortality pattern often associated with increased mortality for both malignant and non-malignant diseases. The long length of follow-up in this study may have mitigated the mortality influence of short-term workers. Potential selection bias from the subjects lost to follow-up in Plant M or the transferred workers missed in Plant P, or underestimation of cause-specific SMRs in Plant G may be operating in our study, but the overall effects would be minimal due to the small percentage of subjects involved. Because we did not adjust *p*-values for multiple comparisons, some of our statistically significant SMRs may be simply chance occurrences.

The total and cause-specific mortality patterns observed in this study were generally quite consistent across plants and indicated a statistically significant reduced mortality risk from all causes combined, all cancer sites combined and from many of the other malignant and non-malignant disease categories examined. Moreover, these reduced risks were maintained in all cohort subgroups examined, including the CD and VC exposure variables (never/ever exposed to CD or VC), and the variables that serve as surrogates of exposure to CD or other substances found in the study plants (worker pay type (blue/white collar), worker service type (short/long term), duration of employment and the time since first employment). These favorable mortality patterns, particularly those for the long-term chronic diseases examined, are probably influenced in part by the "healthy worker effect", a relative absence of deleterious health risks in relation to employment, and the effects of continuing employment with its many benefits, such as improved health care and quality of life.

Of particular importance is our finding of no elevated mortality risks for all cancers combined or for the two *a priori* cancer sites of interest, lung (evaluated separately and within the slightly broader respiratory system cancer category) and liver (categorized as cancer of the biliary passages and liver). Our finding of no excess risk for liver cancer is reassuring, considering that during the course of this investigation, we learned that the acetylene manufacturing process for chloroprene used in Plants L and M produced vinyl chloride exposures as a by-product [17–20]. VC is an established risk factor for a rare form of liver cancer (angiosarcoma) and is also linked to other forms of cancer including hepatocellular carcinoma, brain tumors, lung tumors and malignancies of the lymphatic and hematopoietic system [32]. Excess liver cancers were also reported in experimental studies of animals exposed to CD [16] and in three previous epidemiology studies of workers with potential exposure to CD: workers in a chloroprene monomer production facility in China [7], shoe manufacturing workers in Moscow [9] and chloroprene production workers in Armenia [8]. The inherent methodological limitations in the previous epidemiology studies raise questions, however, about their significance regarding human cancer risks [30,31].

In our study, we examined liver cancer within the broader cause of death category "biliary passages and liver" and found no evidence of an increased risk of death in the total cohort (Plant L included 17 of 19 deaths) or within any of the cohort subgroups examined. Of the 19 deaths coded to this broader liver cancer category, only eight were coded as a primary liver cancer. We found no evidence of increased mortality risks for the other cancer sites linked to VC exposure. As noted in our companion papers, the absence of any elevated cancer risks among VC-exposed subjects in our study is most likely explained by the relatively low historical VC exposures in Plants L and M [17–21].

While the possible occurrence of the rare VC-related cancer, angiosarcoma of the liver, was of interest in this study, methodological limitations precluded a full evaluation. Because angiosarcoma of the liver does not have a specific ICD code until the 10th revision (1999+), it can only be roughly identified in earlier revisions by manually reviewing text fields of death certificates. A comprehensive death certificate review was not possible in this study as we obtained death certificates for the two U.S. plants only for deaths that occurred before the National Death Index (before 1979) and in some cases cause of death for pre-1979 deaths was obtained as an ICD code from the DuPont mortality registry. For Plant G we obtained ICD codes only from our French collaborators and in Plant M we obtained only a limited number of death certificates. What we were able to glean from available data follows.

Seventeen of the 19 deaths coded to cancer of "biliary passages and liver" occurred in Plant L. Only four of these occurred before 1979 and death information was obtained for three from the DuPont mortality registry as an ICD code only. Thus, of the 17 Plant L deaths, we had a copy of the death certificate for only one death. The cause of death on this certificate was noted as "liver cancer". Two of the 17 Plant L deaths occurred during the time-period of the ICD10 (1999 and 2000). One was coded as C249 "malignant neoplasms of digestive organs – malignant neoplasm of other and unspecified parts of biliary tract – biliary tract, unspecified" and one was coded as C220 "malignant neoplasms of digestive organs – malignant neoplasm of liver and intrahepatic bile ducts – liver cell carcinoma". The one Plant M liver cancer death was coded to ICD10 as C229 "malignant neoplasm of liver and intrahepatic bile ducts—liver, unspecified". The exact wording on that death certificate was "cancer of the liver". The possible occurrence of angiosarcoma of the liver would be best evaluated in a cancer incidence study that would utilize more detailed histo-pathological and other information not available on death certificates.

Our finding of no excess risk for respiratory system cancer (of which more than 90% were cancers of the bronchus, trachea or lung, i.e., lung cancer) is also reassuring considering the suggestion of a lung cancer excess in the cohort incidence study of chloroprene production workers in France [11] that formed the basis of our mortality study in Plant G. For several reasons, the results of our cohort mortality study for Plant G are not directly comparable with the previously published cancer incidence study. While both studies included the same facility, the cancer incidence study was limited by entrance criteria not used in the mortality study. Specifically, the cancer incidence study did not include women, employees who worked less than 2 years or subjects who left the Isère region of France before 1979. Also, the cancer incidence and vital status tracing done for the two studies used independent French government data sources. The cancer incidence study used the cancer registry of the Department of Isère for the identification of cancer cases. This regional cancer registry covers the area surrounding the plant and includes cancer diagnosis information for approximately one million inhabitants. The cohort mortality tracing used the nationwide INSERM death registry; this agency records the death information for all residents of France. Because the two agencies cover different populations and record different events, the results of tracing the same study cohort through each service cannot be directly compared. Our finding of no excess lung cancer risk among CD-exposed workers was not entirely unexpected, considering what is now known from experimental animal studies about substantial interspecies differences in sensitivity to CD-induced lung tumorigenicity and how these findings can be extrapolated to estimate human lung cancer risk [14,33,34].

In summary, our study has many strengths and is the most definitive study of the human carcinogenic potential of exposure to CD conducted to date. We conclude from this analysis of general mortality patterns that persons exposed to chloroprene at the levels encountered in the four study sites did not have elevated risks of mortality from any of the causes of death examined, including all cancers combined and lung and liver cancer, the cancer sites of *a priori* interest. This conclusion is corroborated by our detailed analyses of mortality in relation to qualitative and quantitative exposures to CD and VC at each of the four study sites, reported in our companion paper [21].

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References

[1] J. Lynch, BD monomer and elastomer production processes, Chem. Biol. Interact. 135–136 (2001) 147–153.

[2] R. Waxweiler, W. Stringer, J. Wagoner, J. Jones, H. Falk, C. Carter, Neoplastic risk among workers exposed to vinyl chloride, Ann. N.Y. Acad. Sci. 271 (1976) 40–48.

[3] P. Infante, Carcinogenic and mutagenic risks associated with some halogenated olefins, Environ. Health Perspect. 21 (1977) 251–254.

[4] E. Khachatryan, The occurrence of lung cancer among people working with chloroprene, Vop. Onkol. 18 (1972) 85–86.

[5] E. Khachatryan, The role of chloroprene compounds in the process of skin neoplasm formation, Gig. Tr. Prof. Zabol. 16 (1972) 54–55.

[6] S. Pell, Mortality of workers exposed to chloroprene, J. Occup. Med. 20 (1978) 21–29.

[7] L. Shouqi, D. Quinan, L. Yuqing, L. Yingfei, Epidemiologic study of cancer mortality among chloroprene workers, Biomed. Environ. Sci. 2 (1989) 141–149.

[8] M. Bulbulyan, A. Margaryan, S. Ilychova, S. Astashevsky, S. Uloyan, V. Cogan, D. Colin, P. Boffetta, D. Zaridze, Cancer incidence and mortality in a cohort of chloroprene workers from Armenia, Int. J. Cancer 81 (1999) 31–33.

[9] M. Bulbulyan, O. Changuina, D. Zaridze, S. Astashevsky, D. Colin, P. Boffetta, Cancer mortality among Moscow shoe workers exposed to chloroprene, Cancer Causes Control 9 (4) (1998) 381–387.

[10] D. Zaridze, M. Bulbulyan, O. Changuina, A. Margaryan, P. Boffetta, Cohort studies of chloroprene-exposed workers in Russia, Chem. Biol. Interact. 135–136 (2001) 487–503.

[11] M. Colonna, G. Laydevant, A cohort study of workers exposed to chloroprene in the department of Isere, France, Chem. Biol. Interact. 135–136 (2001) 505–514.

[12] IARC Monographs vol. 19, Chloroprene and polychloroprene, Lyon, France, 1979.

[13] IARC Monographs Suppl. 7, Chloroprene, Lyon, France, 1987.

[14] R. Melnick, R. Sills, C. Portier, J. Roycroft, B. Chou, S. Grumbein, R. Miller, Multiple organ carcinogenicity of inhaled chloroprene (2-chloro-1,3-butadiene) in F344/N rats and B6C3F1 mice and comparison of dose–response with 1,3-butadiene in mice, Carcinogenesis 20 (1999) 867–878.

[15] National Toxicology Program (NTP), Toxicology and carcinogenesis studies of chloroprene (CAS no. 126-99-8) in F344/N rats and B6C3F1 mice (inhalation studies), Technical Report no. 467, National Institutes of Health Publication no. 98-3957, National Institutes of Health, Bethesda, MD, 1998.

[16] IARC Monographs vol. 71, Chloroprene: re-evaluation of some organic chemicals, hydrazine and hydrogen peroxide, Lyon, France, 1999.

[17] N. Esmen, K. Kennedy, T. Hall, M. Phillips, Classification of worker exposures, Chem. Biol. Interact. 166 (2007) 245–253.

[18] N. Esmen, T. Hall, M. Phillips, G. Marsh, Chemical process based reconstruction of exposures for an epidemiological study. I. Theoretical and methodological issues, Chem. Biol. Interact. 166 (2007) 254–263.

[19] N. Esmen, T. Hall, M. Phillips, E. Jones, H. Basara, G. Marsh, J. Buchanich, Chemical process based reconstruction of exposures for an epidemiological study. II. Estimated exposures to chloroprene and vinyl chloride, Chem. Biol. Interact. 166 (2007) 264–276.

[20] T. Hall, N. Esmen, E. Jones, H. Basara, M. Phillips, G. Marsh, A. Youk, J. Buchanich, R. Leonard, Chemical process based reconstruction of exposures for an epidemiological study. III. Analysis of industrial hygiene samples, Chem. Biol. Interact. 166 (2007) 277–284.

[21] G. Marsh, A. Youk, J. Buchanich, M. Cunningham, N. Esmen, T. Hall, M. Phillips, Mortality patterns among industrial workers exposed to chloroprene and other substances. II. Mortality in relation to exposure, Chem. Biol. Interact. 166 (2007) 301–316.

[22] L. Schall, G. Marsh, V. Henderson, A two-stage protocol for verifying vital status in large historical cohort studies, J. Occup. Environ. Med. 39 (1997) 1097–1102.

[23] L. Schall, J. Buchanich, G. Marsh, G. Bittner, Utilizing multiple vital status tracing services optimizes mortality follow-up in large cohort studies, Ann. Epidemiol. 11 (2001) 292–296.

[24] J. Buchanich, D. Dolan, G. Marsh, J. Madrigano, Under ascertainment of deaths using social security records: a recommended solution to a little-known problem, Am. J. Epidemiol. 162 (2) (2005) 193–194.

[25] G. Marsh, A. Youk, R. Stone, S. Sefcik, C. Alcorn, OCMAP-PLUS, a new program for the comprehensive analysis of occupational cohort data, J. Occup. Environ. Med. 40 (1998) 351–362.

[26] G. Marsh, A. Youk, S. Sefcik, Mortality and Population Data System (MPDS), University of Pittsburgh, Department of Biostatistics technical report, 2005.

[27] N. Breslow, N. Day, The Design and Analysis of Cohort Studies. Statistical Methods in Cancer Research, vol. II, Oxford University Press, Lyon, 1987.

[28] MMWR November 6, 1998, State-specific prevalence among adults of current cigarette smoking and smokeless tobacco use and per capita tax-paid sales of cigarettes—United States, 47 (43), 1999, pp. 922–926.

[29] MMWR November 12, 2004, State-specific prevalence of current cigarette smoking among adults United States, 53 (44), 2003, pp. 1035–1037.

[30] J. Rice, P. Boffetta, 1,3-Butadiene, isoprene and chloroprene: reviews by the IARC monographs programme, outstanding issues, and research priorities in epidemiology, Chem. Biol. Interact. 135–136 (2001) 11–26.

[31] J. Acquavella, R. Leonard, A review of the epidemiology of 1,3-butadiene and chloroprene, Chem. Biol. Interact. 135–136 (2001) 43–52.

[32] IARC Monographs Suppl. 7, Vinyl chloride, Lyon, France, 1987.

[33] H. Himmelstein, S. Carpenter, P. Hinderliter, Kinetic modeling of β-chloroprene metabolism. I. *In vitro* rates in liver and lung tissue fractions from mice, rats, hamsters, and humans, Toxicol. Sci. 79 (2004) 18–27.

[34] H. Himmelstein, S. Carpenter, M. Evans, P. Hinderliter, E. Kenyon, Kinetic modeling of β-chloroprene metabolism. II. The application of physiologically based modeling for cancer dose response analysis, Toxicol. Sci. 79 (2004) 28–37.